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tggctgtcac actttgaggc aactaaaaag gcttcaaacg ttttgatcag 2350

tttcttttca ggaaacattg tgctctaaca gtatgactat tctttccccc 2400

actcttaaac agtgtgatgt gtgttatcct aggaaatgag agttggcaaa 2450

caacttctca ttttgaatag agtttgtgtg tacttctcca tatttaattt 2500

atatgataaa ataggtgggg agagtctgaa ccttaactgt catgtttttgt 2550

tgttcatctg tggccacaat aaagtttact tgtaaaattt tagaggccat 2600

tactccaatt atgttgcacg tacactcatt gtacaggcgt ggagactcat 2650

tgtatgtata agaatatttc tgacagtgag tgacccggag tctctggtgt 2700

accctcttac cagtcagctg cctgcgagca gtcatttttt cctaaaggtt 2750

tacaagtatt tagaactttt cagttcaggg caaaatgttc atgaagttat 2800

tcctcttaaa catggttagg aagctgatga cgttattgat tttgtctgga 2850

ttatgtttct ggaataattt taccaaaaca agctatttga gttttgactt 2900

gacaaggcaa aacatgacag tggattctct ttacaaatgg aaaaaaaaaa 2950

tccttatttt gtataaagga cttcccttttt tgtaaactaa tcctttttat 3000

tggtaaaaat tgtaaattaa aatgtgcaac ttg 3033
```

<210> 6
<211> 251
<212> PRT
<213> Homo sapiens

<400> 6

```
Met Ser Asp Ile Gly Asp Trp Phe Arg Ser Ile Pro Ala Ile Thr
1               5                   10                  15

Arg Tyr Trp Phe Ala Ala Thr Val Ala Val Pro Leu Val Gly Lys
                20                  25                  30

Leu Gly Leu Ile Ser Pro Ala Tyr Leu Phe Leu Trp Pro Glu Ala
                35                  40                  45

Phe Leu Tyr Arg Phe Gln Ile Trp Arg Pro Ile Thr Ala Thr Phe
                50                  55                  60

Tyr Phe Pro Val Gly Pro Gly Thr Gly Phe Leu Tyr Leu Val Asn
                65                  70                  75

Leu Tyr Phe Leu Tyr Gln Tyr Ser Thr Arg Leu Glu Thr Gly Ala
                80                  85                  90

Phe Asp Gly Arg Pro Ala Asp Tyr Leu Phe Met Leu Leu Phe Asn
                95                  100                 105
```

16

```
Trp Ile Cys Ile Val Ile Thr Gly Leu Ala Met Asp Met Gln Leu
              110                 115                 120

Leu Met Ile Pro Leu Ile Met Ser Val Leu Tyr Val Trp Ala Gln
              125                 130                 135

Leu Asn Arg Asp Met Ile Val Ser Phe Trp Phe Gly Thr Arg Phe
              140                 145                 150

Lys Ala Cys Tyr Leu Pro Trp Val Ile Leu Gly Phe Asn Tyr Ile
              155                 160                 165

Ile Gly Gly Ser Val Ile Asn Glu Leu Ile Gly Asn Leu Val Gly
              170                 175                 180

His Leu Tyr Phe Phe Leu Met Phe Arg Tyr Pro Met Asp Leu Gly
              185                 190                 195

Gly Arg Asn Phe Leu Ser Thr Pro Gln Phe Leu Tyr Arg Trp Leu
              200                 205                 210

Pro Ser Arg Arg Gly Gly Val Ser Gly Phe Gly Val Pro Pro Ala
              215                 220                 225

Ser Met Arg Arg Ala Ala Asp Gln Asn Gly Gly Gly Gly Arg His
              230                 235                 240

Asn Trp Gly Gln Gly Phe Arg Leu Gly Asp Gln
              245                 250
```

<210> 7
<211> 1373
<212> DNA
<213> Homo sapiens

<400> 7
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ggggccgcgg tctagggcgg ctacgtgtgt tgccatagcg accattttgc 50

attaactggt tggtagcttc tatcctgggg gctgagcgac tgcgggccag 100

ctcttcccct actccctctc ggctccttgt ggcccaaagg cctaaccggg 150

gtccggcggt ctggcctagg gatcttcccc gttgcccctt tggggcggga 200

tggctgcgga agaagaagac gaggtggagt gggtagtgga gagcatcgcg 250

gggttcctgc gaggcccaga ctggtccatc cccatcttgg actttgtgga 300

acagaaatgt gaagttaact gcaaaggagg gcatgtgata actccaggaa 350

gcccagagcc ggtgattttg gtggcctgtg ttccccttgt ttttgatgat 400

gaagaagaaa gcaaattgac ctatacagag attcatcagg aatacaaaga 450

actagttgaa aagctgttag aaggttacct caaagaaatt ggaattaatg 500

aagatcaatt tcaagaagca tgcacttctc ctcttgcaaa gacccataca 550

tcacaggcca ttttgcaacc tgtgttggca gcagaagatt ttactatctt 600

taaagcaatg atggtccaga aaaacattga aatgcagctg caagccattc 650

gaataattca agagagaaat ggtgtattac ctgactgctt aaccgatggc 700
```

17

```
tctgatgtgg tcagtgacct tgaacacgaa gagatgaaaa tcctgaggga 750

agttcttaga aaatcaaaag aggaatatga ccaggaagaa gaaaggaaga 800

ggaaaaaaca gttatcagag gctaaaacag aagagcccac agtgcattcc 850

agtgaagctg caataatgaa taattcccaa ggggatggtg aacattttgc 900

acacccaccc tcagaagtta aaatgcattt tgctaatcag tcaatagaac 950

ctttgggaag aaaagtggaa aggtctgaaa cttcctccct cccacaaaaa 1000

ggcctgaaga ttcctggctt agagcatgcg agcattgaag gaccaatagc 1050

aaacttatca gtacttggaa cagaagaact tcggcaacga gaacactatc 1100

tcaagcagaa gagagataag ttgatgtcca tgagaaagga tatgaggact 1150

aaacagatac aaaatatgga gcagaaagga aaacccactg gggaggtaga 1200

ggaaatgaca gagaaaccag aaatgacagc agaggagaag caaacattac 1250

taaagaggag attgcttgca gagaaactca agaagaagt tattaataag 1300

taataattaa gaacaattta acaaaatgga agttcaaatt gtcttaaaaa 1350

taaattattt agtccttaca ctg 1373
```

<210> 8
<211> 367
<212> PRT
<213> Homo sapiens

<400> 8

```
Met Ala Ala Glu Glu Glu Asp Glu Val Glu Trp Val Val Glu Ser
 1               5                   10                  15

Ile Ala Gly Phe Leu Arg Gly Pro Asp Trp Ser Ile Pro Ile Leu
                20                  25                  30

Asp Phe Val Glu Gln Lys Cys Glu Val Asn Cys Lys Gly Gly His
                35                  40                  45

Val Ile Thr Pro Gly Ser Pro Glu Pro Val Ile Leu Val Ala Cys
                50                  55                  60

Val Pro Leu Val Phe Asp Asp Glu Glu Glu Ser Lys Leu Thr Tyr
                65                  70                  75

Thr Glu Ile His Gln Glu Tyr Lys Glu Leu Val Glu Lys Leu Leu
                80                  85                  90

Gly Gly Tyr Leu Lys Glu Ile Gly Ile Asn Glu Asp Gln Phe Gln
                95                  100                 105

Glu Ala Cys Thr Ser Pro Leu Ala Lys Thr His Thr Ser Gln Ala
                110                 115                 120

Ile Leu Gln Pro Val Leu Ala Ala Glu Asp Phe Thr Ile Phe Lys
                125                 130                 135

Ala Met Met Val Gln Lys Asn Ile Glu Met Gln Leu Gln Ala Ile
                140                 145                 150
```

18

```
Arg Ile Ile Gln Glu Arg Asn Gly Val Leu Pro Asp Cys Leu Thr
              155                 160                 165

Asp Gly Ser Asp Val Val Ser Asp Leu Glu His Glu Glu Met Lys
              170                 175                 180

Ile Leu Arg Glu Val Leu Arg Lys Ser Lys Glu Glu Tyr Asp Gln
              185                 190                 195

Glu Glu Glu Arg Lys Arg Lys Lys Gln Leu Ser Glu Ala Lys Thr
              200                 205                 210

Glu Glu Pro Thr Val His Ser Ser Glu Ala Ala Ile Met Asn Asn
              215                 220                 225

Ser Gln Gly Asp Gly Glu His Phe Ala His Pro Pro Ser Glu Val
              230                 235                 240

Lys Met His Phe Ala Asn Gln Ser Ile Glu Pro Leu Gly Arg Lys
              245                 250                 255

Val Glu Arg Ser Glu Thr Ser Ser Leu Pro Gln Lys Gly Leu Lys
              260                 265                 270

Ile Pro Gly Leu Glu His Ala Ser Ile Glu Gly Pro Ile Ala Asn
              275                 280                 285

Leu Ser Val Leu Gly Thr Glu Glu Leu Arg Gln Arg Glu His Tyr
              290                 295                 300

Leu Lys Gln Lys Arg Asp Lys Leu Met Ser Met Arg Lys Asp Met
              305                 310                 315

Arg Thr Lys Gln Ile Gln Asn Met Glu Gln Lys Gly Lys Pro Thr
              320                 325                 330

Gly Glu Val Glu Glu Met Thr Glu Lys Pro Glu Met Thr Ala Glu
              335                 340                 345

Glu Lys Gln Thr Leu Leu Lys Arg Arg Leu Leu Ala Glu Lys Leu
              350                 355                 360

Lys Glu Glu Val Ile Asn Lys
              365
```

<210> 9
<211> 418
<212> DNA
<213> Homo sapiens

<400> 9

```
gggcacagca catgtgaagt ttttgatgat gaagaagaaa gcaaattgac 50

ctatacagag attcatcagg aatacaaaga actagttgaa aagctgttag 100

aaggttacct caaagaaatt ggaattaatg aagatcaatt tcaagaagca 150

tgcacttctc ctcttgcaaa gacccataca tcacaggcca tttttgcaac 200

ctgtgttggc agcagaagat tttactatct ttaaagcaat gatggtccag 250

aaaaacattg aaatgcagct gcaagccatt cgaataattc aagagagaaa 300
```

19

```
tggtgtatta cctgactgct taaccgatgg ctctgatgtg gtcagtgacc 350

ttgaacacga agagatgaaa atcctgaggg aagttcttag aaaatcaaaa 400

gaggaatatg accaggaa 418
```

```
<210> 10
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 10
ttgacctata cagagattca tc 22
```

```
<210> 11
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 11
ctaagaactt ccctcaggat ttt 23
```

```
<210> 12
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 12
atgaagatca atttcaagaa gcatgcactt ctcctcttgc 40
```

```
<210> 13
<211> 2886
<212> DNA
<213> Homo sapiens

<400> 13
gcgtggtttt tgttctgcaa taggcggctt agagggaggg gctttttcgc 50

ctatacctac tgtagcttct ccacgtatgg accctaaagg ctactgctgc 100

tactacgggg ctagacagtt actgtctcag ctctaggatg tgcgttcttc 150

cactagaagc tcttctgagg gaggtaatta aaaaacagtg gaatggaaaa 200

acagtgctgt agtcatcctg taatatgctc cttgtcaaca atgtatacat 250

tcctgctagg tgccatattc attgctttaa gctcaagtcg catcttacta 300

gtgaagtatt ctgccaatga agaaaacaag tatgattatc ttccaactac 350

tgtgaatgtg tgctcagaac tggtgaagct agttttctgt gtgcttgtgt 400

cattctgtgt tataaagaaa gatcatcaaa gtagaaattt gaaatatgct 450
```

20

```
tcctggaagg aattctctga tttcatgaag tggtccattc ctgcctttct 500

ttatttcctg gataacttga ttgtcttcta tgtcctgtcc tatcttcaac 550

cagccatggc tgttatcttc tcaaatttta gcattataac aacagctctt 600

ctattcagga tagtgctgaa gaggcgtcta aactggatcc agtgggcttc 650

cctcctgact ttatttttgt ctattgtggc cttgactgcc gggactaaaa 700

ctttacagca caacttggca ggacgtggat ttcatcacga tgccttttc 750

agcccttcca attcctgcct tcttttcaga agtgagtgtc ccagaaaaga 800

caattgtaca gcaaaggaat ggacttttcc tgaagctaaa tggaacacca 850

cagccagagt tttcagtcac atccgtcttg gcatgggcca tgttcttatt 900

atagtccagt gttttatttc ttcaatggct aatatctata atgaaaagat 950

actgaaggag gggaaccagc tcactgaaag catcttcata cagaacagca 1000

aactctattt ctttggcatt ctgtttaatg ggctgactct gggccttcag 1050

aggagtaacc gtgatcagat taagaactgt ggattttttt atggccacag 1100

tgcattttca gtagcccttattttttgtaac tgcattccag ggcctttcag 1150

tggctttcat tctgaagttc ctggataaca tgttccatgt cttgatggcc 1200

caggttacca ctgtcattat cacaacagtg tctgtcctgg tctttgactt 1250

caggccctcc ctggaatttt tcttggaagc cccatcagtc cttctctcta 1300

tatttattta taatgccagc aagcctcaag ttccggaata cgcacctagg 1350

caagaaagga tccgagatct aagtggcaat ctttgggagc gttccagtgg 1400

ggatggagaa gaactagaaa gacttaccaa acccaagagt gatgagtcag 1450

atgaagatac tttctaactg gtacccacat agtttgcagc tctcttgaac 1500

cttattttca cattttcagt gtttgtaata tttatctttt cactttgata 1550

aaccagaaat gtttctaaat cctaatattc tttgcatata tctagctact 1600

ccctaaatgg ttccatccaa ggcttagagt acccaaaggc taagaaattc 1650

taaagaactg atacaggagt aacaatatga agaattcatt aatatctcag 1700

tacttgataa atcagaaagt tatatgtgca gattattttc cttggccttc 1750

aagcttccaa aaaacttgta ataatcatgt tagctatagc ttgtatatac 1800

acatagagat caatttgcca aatattcaca atcatgtagt tctagtttac 1850

atgccaaagt cttccctttt taacattata aaagctaggt tgtctcttga 1900

attttgaggc cctagagata gtcattttgc aagtaaagag caacgggacc 1950

ctttctaaaa acgttggttg aaggacctaa atacctggcc ataccataga 2000

tttgggatga tgtagtctgt gctaaatatt ttgctgaaga agcagtttct 2050
```

21

```
cagacacaac atctcagaat tttaattttt agaaattcat gggaaattgg 2100

attttttgtaa taatcttttg atgtttttaaa cattggttcc ctagtcacca 2150

tagttaccac ttgtattttta agtcatttaa acaagccacg gtggggcttt 2200

tttctcctca gtttgaggag aaaaatcttg atgtcattac tcctgaatta 2250

ttacattttg gagaataaga gggcatttta ttttattagt tactaattca 2300

agctgtgact attgtatatc tttccaagag ttgaaatgct ggcttcagaa 2350

tcataccaga ttgtcagtga agctgatgcc taggaacttt taaagggatc 2400

ctttcaaaag gatcacttag caaacacatg ttgactttta actgatgtat 2450

gaatattaat actctaaaaa tagaaagacc agtaatatat aagtcacttt 2500

acagtgctac ttcacactta aaagtgcatg gtatttttca tggtattttg 2550

catgcagcca gttaactctc gtagatagag aagtcaggtg atagatgata 2600

ttaaaaatta gcaaacaaaa gtgacttgct cagggtcatg cagctgggtg 2650

atgatagaag agtgggcttt aactggcagg cctgtatgtt tacagactac 2700

catactgtaa atatgagctt tatggtgtca ttctcagaaa cttatacatt 2750

tctgctctcc tttctcctaa gtttcatgca gatgaatata aggtaatata 2800

ctattatata attcatttgt gatatccaca ataatatgac tggcaagaat 2850

tggtggaaat ttgtaattaa aataattatt aaacct 2886
```

<210> 14
<211> 424
<212> PRT
<213> Homo sapiens

<400> 14
```
Met Glu Lys Gln Cys Cys Ser His Pro Val Ile Cys Ser Leu Ser
 1               5                  10                  15

Thr Met Tyr Thr Phe Leu Leu Gly Ala Ile Phe Ile Ala Leu Ser
            20                  25                  30

Ser Ser Arg Ile Leu Leu Val Lys Tyr Ser Ala Asn Glu Glu Asn
            35                  40                  45

Lys Tyr Asp Tyr Leu Pro Thr Thr Val Asn Val Cys Ser Glu Leu
            50                  55                  60

Val Lys Leu Val Phe Cys Val Leu Val Ser Phe Cys Val Ile Lys
            65                  70                  75

Lys Asp His Gln Ser Arg Asn Leu Lys Tyr Ala Ser Trp Lys Glu
            80                  85                  90

Phe Ser Asp Phe Met Lys Trp Ser Ile Pro Ala Phe Leu Tyr Phe
            95                  100                 105

Leu Asp Asn Leu Ile Val Phe Tyr Val Leu Ser Tyr Leu Gln Pro
            110                 115                 120
```

22

```
Ala Met Ala Val Ile Phe Ser Asn Phe Ser Ile Ile Thr Thr Ala
              125             130                     135

Leu Leu Phe Arg Ile Val Leu Lys Arg Arg Leu Asn Trp Ile Gln
              140             145                     150

Trp Ala Ser Leu Leu Thr Leu Phe Leu Ser Ile Val Ala Leu Thr
              155             160                     165

Ala Gly Thr Lys Thr Leu Gln His Asn Leu Ala Gly Arg Gly Phe
              170             175                     180

His His Asp Ala Phe Phe Ser Pro Ser Asn Ser Cys Leu Leu Phe
              185             190                     195

Arg Ser Glu Cys Pro Arg Lys Asp Asn Cys Thr Ala Lys Glu Trp
              200             205                     210

Thr Phe Pro Glu Ala Lys Trp Asn Thr Thr Ala Arg Val Phe Ser
              215             220                     225

His Ile Arg Leu Gly Met Gly His Val Leu Ile Ile Val Gln Cys
              230             235                     240

Phe Ile Ser Ser Met Ala Asn Ile Tyr Asn Glu Lys Ile Leu Lys
              245             250                     255

Glu Gly Asn Gln Leu Thr Glu Ser Ile Phe Ile Gln Asn Ser Lys
              260             265                     270

Leu Tyr Phe Phe Gly Ile Leu Phe Asn Gly Leu Thr Leu Gly Leu
              275             280                     285

Gln Arg Ser Asn Arg Asp Gln Ile Lys Asn Cys Gly Phe Phe Tyr
              290             295                     300

Gly His Ser Ala Phe Ser Val Ala Leu Ile Phe Val Thr Ala Phe
              305             310                     315

Gln Gly Leu Ser Val Ala Phe Ile Leu Lys Phe Leu Asp Asn Met
              320             325                     330

Phe His Val Leu Met Ala Gln Val Thr Thr Val Ile Ile Thr Thr
              335             340                     345

Val Ser Val Leu Val Phe Asp Phe Arg Pro Ser Leu Glu Phe Phe
              350             355                     360

Leu Glu Ala Pro Ser Val Leu Leu Ser Ile Phe Ile Tyr Asn Ala
              365             370                     375

Ser Lys Pro Gln Val Pro Glu Tyr Ala Pro Arg Gln Glu Arg Ile
              380             385                     390

Arg Asp Leu Ser Gly Asn Leu Trp Glu Arg Ser Ser Gly Asp Gly
              395             400                     405

Glu Glu Leu Glu Arg Leu Thr Lys Pro Lys Ser Asp Glu Ser Asp
              410             415                     420

Glu Asp Thr Phe
```

23

<210> 15
<211> 755
<212> DNA
<213> Homo sapiens

<400> 15
 cgtgcctgcg caatgggtgt cgggtccgct ttttcccaat ccggacgtaa 50

 tcgtggtttt tgttctgcaa taggcggctt agagggaggg gcttttttcgc 100

 ctataccact tgtagcttct ccacgtatgg accctaaagg ctactgctgc 150

 tactacgggg ctagacagtt actgtctcag ctctaggatg tgcgttcttc 200

 cactagaagc tcttctgagg gaggtaatta aaaaacagtg gaatggaaaa 250

 acagtgctgt agtcatcctg taatatgctc cttgtcaaca atgtatacat 300

 tcctgctagg tgccatattc attgctttaa gctcaagtcg catcttacta 350

 gtgaagtatt ctgccaatga agaaaacaag tatgattatc ttccaactac 400

 tgtgaatgtg tgctcagaac tggtgaagct agttttctgt gtgcttgtgt 450

 cattctgtgt tataaagaaa gatcatcaaa gtagaaattt gaaatatgct 500

 tcctggaagg aattctctga tttcatgaag tggtccattc ctgcctttct 550

 ttatttcctg gataacttga ttgtcttcta tgtcctgtcc tatcttcaac 600

 cagccatggc tgttatcttc tcaaatttta gcattataac aacagctctt 650

 ctattcagga tagtgctgaa gaggcgtcta aactggatcc agtgggcttc 700

 cctcctgact ttattttttgt ctattgtggc cttgactgcc gggactaaaa 750

 cttta 755

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 16
 ctataccact tgtagcttct 20

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 17
 tcagagaatt ccttccagga 20

<210> 18
<211> 40
<212> DNA

24

<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 18
 acagtgctgt agtcatcctg taatatgctc cttgtcaaca 40

<210> 19
<211> 2142
<212> DNA
<213> Homo sapiens

<400> 19
 cggacgcgtg ggcggacgcg tgggcggacg cgtggggccg gcttggctag 50

 cgcgcggcgg ccgtggctaa ggctgctacg aagcgagctt gggaggagca 100

 gcggcctgcg gggcagagga gcatcccgtc taccaggtcc caagcggcgt 150

 ggcccgcggg tcatggccaa aggagaaggc gccgagagcg gctccgcggc 200

 ggggctgcta cccaccagca tcctccaaag cactgaacgc ccggcccagg 250

 tgaagaaaga accgaaaaag aagaaacaac agttgtctgt ttgcaacaag 300

 ctttgctatg cacttggggg agccccctac caggtgacgg gctgtgccct 350

 gggtttcttc cttcagatct acctattgga tgtggctcag gtgggccctt 400

 tctctgcctc catcatcctg tttgtgggcc gagcctggga tgccatcaca 450

 gacccctgg tgggcctctg catcagcaaa tccccctgga cctgcctggg 500

 tcgccttatg ccctggatca tcttctccac gccccctgcc gtcattgcct 550

 acttcctcat ctggttcgtg cccgacttcc cacacggcca gacctattgg 600

 tacctgcttt tctattgcct ctttgaaaca atggtcacgt gtttccatgt 650

 tccctactcg gctctcacca tgttcatcag caaccgagca gactgagcgg 700

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 gggcacggcg atccagggac aaatcgtggg ccaagcagac acgccttgtt 800

 tccaggactt caatagctct acagtagctt cacaaagtgc caaccataca 850

 catggcacca cttcacacag ggaaacgcaa aaggcatacc tgctggcagc 900

 gggggtcatt gtctgtatct atataatctg tgctgtcatc ctgatcctgg 950

 gcgtgcggga gcagagagaa ccctatgaag cccagcagtc tgagccaatc 1000

 gcctacttcc ggggcctacg gctggtcatg agccacggcc catacatcaa 1050

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 ggaactttgt cttgttttgc acctacacct tgggcttccg caatgaattc 1150

 cagaatctac tcctggccat catgctctcg gccactttaa ccattcccat 1200

 ctggcagtgg ttcttgaccc ggtttggcaa gaagacagct gtatatgttg 1250

25

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ggatctcatc agcagtgcca tttctcatct tggtggccct catggagagt 1300

aacctcatca ttacatatgc ggtagctgtg gcagctggca tcagtgtggc 1350

agctgccttc ttactaccct ggtccatgct gcctgatgtc attgacgact 1400

tccatctgaa gcagccccac ttccatggaa ccgagcccat cttcttctcc 1450

ttctatgtct tcttcaccaa gtttgcctct ggagtgtcac tgggcatttc 1500

taccctcagt ctggactttg cagggtacca gacccgtggc tgctcgcagc 1550

cggaacgtgt caagtttaca ctgaacatgc tcgtgaccat ggctcccata 1600

gttctcatcc tgctgggcct gctgctcttc aaaatgtacc ccattgatga 1650

ggagaggcgg cggcagaata agaaggccct gcaggcactg agggacgagg 1700

ccagcagctc tggctgctca gaaacagact ccacagagct ggctagcatc 1750

ctctagggcc cgccacgttg cccgaagcca ccatgcagaa ggccacagaa 1800

gggatcagga cctgtctgcc ggcttgctga gcagctggac tgcaggtgct 1850

aggaagggaa ctgaagactc aaggaggtgg cccaggacac ttgctgtgct 1900

cactgtgggg ccggctgctc tgtggcctcc tgcctcccct ctgcctgcct 1950

gtggggccaa gccctggggc tgccactgtg aatatgccaa ggactgatcg 2000

ggcctagccc ggaacactaa tgtagaaacc tttttttttac agagcctaat 2050

taataactta atgactgtgt acatagcaat gtgtgtgtat gtatatgtct 2100

gtgagctatt aatgttatta attttcataa aagctggaaa gc 2142
```

<210> 20
<211> 458
<212> PRT
<213> Homo sapiens

<400> 20

```
Met Trp Leu Arg Trp Ala Leu Ser Leu Pro Pro Ser Ser Cys Leu
1               5                   10                  15

Trp Ala Glu Pro Gly Met Pro Ser Gln Thr Pro Trp Trp Ala Ser
                20                  25                  30

Ala Ser Ala Asn Pro Pro Gly Pro Ala Trp Val Ala Leu Cys Pro
                35                  40                  45

Gly Ser Ser Ser Pro Arg Pro Trp Pro Ser Leu Pro Thr Ser Ser
                50                  55                  60

Ser Gly Ser Cys Pro Thr Ser His Thr Ala Arg Pro Ile Gly Thr
65                  70                  75

Cys Phe Ser Ile Ala Ser Leu Lys Gln Trp Ser Arg Val Ser Met
                80                  85                  90

Phe Pro Thr Arg Leu Ser Pro Cys Ser Ser Ala Thr Glu Gln Thr
                95                  100                 105
```

26

```
Glu Arg Asp Ser Ala Thr Ala Tyr Arg Met Thr Val Glu Val Leu
            110                 115                 120

Gly Thr Val Leu Gly Thr Ala Ile Gln Gly Gln Ile Val Gly Gln
            125                 130                 135

Ala Asp Thr Pro Cys Phe Gln Asp Phe Asn Ser Ser Thr Val Ala
            140                 145                 150

Ser Gln Ser Ala Asn His Thr His Gly Thr Thr Ser His Arg Glu
            155                 160                 165

Thr Gln Lys Ala Tyr Leu Leu Ala Ala Gly Val Ile Val Cys Ile
            170                 175                 180

Tyr Ile Ile Cys Ala Val Ile Leu Ile Leu Gly Val Arg Glu Gln
            185                 190                 195

Arg Glu Pro Tyr Glu Ala Gln Gln Ser Glu Pro Ile Ala Tyr Phe
            200                 205                 210

Arg Gly Leu Arg Leu Val Met Ser His Gly Pro Tyr Ile Lys Leu
            215                 220                 225

Ile Thr Gly Phe Leu Phe Thr Ser Leu Ala Phe Met Leu Val Glu
            230                 235                 240

Gly Asn Phe Val Leu Phe Cys Thr Tyr Thr Leu Gly Phe Arg Asn
            245                 250                 255

Glu Phe Gln Asn Leu Leu Leu Ala Ile Met Leu Ser Ala Thr Leu
            260                 265                 270

Thr Ile Pro Ile Trp Gln Trp Phe Leu Thr Arg Phe Gly Lys Lys
            275                 280                 285

Thr Ala Val Tyr Val Gly Ile Ser Ser Ala Val Pro Phe Leu Ile
            290                 295                 300

Leu Val Ala Leu Met Glu Ser Asn Leu Ile Ile Thr Tyr Ala Val
            305                 310                 315

Ala Val Ala Ala Gly Ile Ser Val Ala Ala Ala Phe Leu Leu Pro
            320                 325                 330

Trp Ser Met Leu Pro Asp Val Ile Asp Asp Phe His Leu Lys Gln
            335                 340                 345

Pro His Phe His Gly Thr Glu Pro Ile Phe Phe Ser Phe Tyr Val
            350                 355                 360

Phe Phe Thr Lys Phe Ala Ser Gly Val Ser Leu Gly Ile Ser Thr
            365                 370                 375

Leu Ser Leu Asp Phe Ala Gly Tyr Gln Thr Arg Gly Cys Ser Gln
            380                 385                 390

Pro Glu Arg Val Lys Phe Thr Leu Asn Met Leu Val Thr Met Ala
            395                 400                 405

Pro Ile Val Leu Ile Leu Leu Gly Leu Leu Leu Phe Lys Met Tyr
            410                 415                 420
```

27

```
Pro Ile Asp Glu Glu Arg Arg Arg Gln Asn Lys Lys Ala Leu Gln
              425              430              435

Ala Leu Arg Asp Glu Ala Ser Ser Ser Gly Cys Ser Glu Thr Asp
              440              445              450

Ser Thr Glu Leu Ala Ser Ile Leu
              455
```

<210> 21
<211> 571
<212> DNA
<213> Homo sapiens

<400> 21
```
gggaaacgca aaaggcatac ctgctggcag cgggggtcat tgtctgtatc 50

tatataatct gtgctgtcat cctgatcctg ggcgtgcggg agcagagaga 100

accctatgaa gcccagcagt ctgagccaat cgcctacttc cggggcctac 150

ggctggtcat gagccacggc ccatacatca aacttattac tggcttcctc 200

ttcacctcct tggctttcat gctggtggag gggaactttg tcttgttttg 250

cacctacacc ttgggcttcc gcaatgaatt ccagaatcta ctcctggcca 300

tcatgctctc ggccacttta accattccca tctggcagtg gttcttgacc 350

cggtttggca agaagacagc tgtatatgtt gggatctcat cagcagtgcc 400

atttctcatc ttggtggccc tcatggagag taacctcatc attacatatg 450

cggtagctgt ggcagctggc atcagtgtgg cagctgcctt cttactaccc 500

tggtccatgc tgcctgatgt cattgacgac ttccatctga agcagcccca 550

cttccatgga accgagccca t 571
```

<210> 22
<211> 1173
<212> DNA
<213> Homo sapiens

<400> 22
```
ggggcttcgg cgccagcggc cagcgctagt cggtctggta aggatttaca 50

aaaggtgcag gtatgagcag gtctgaagac taacattttg tgaagttgta 100

aaacagaaaa cctgttagaa atgtggtggt ttcagcaagg cctcagtttc 150

cttccttcag cccttgtaat ttggacatct gctgctttca tattttcata 200

cattactgca gtaacactcc accatataga cccggcttta ccttatatca 250

gtgacactgg tacagtagct ccagaaaaat gcttatttgg ggcaatgcta 300

aatattgcgg cagttttatg cattgctacc atttatgttc gttataagca 350

agttcatgct ctgagtcctg aagagaacgt tatcatcaaa ttaaacaagg 400

ctggccttgt acttggaata ctgagttgtt taggactttc tattgtggca 450
```

28

```
aacttccaga aaacaaccct ttttgctgca catgtaagtg gagctgtgct 500

tacctttggt atgggctcat tatatatgtt tgttcagacc atcctttcct 550

accaaatgca gcccaaaatc catggcaaac aagtcttctg gatcagactg 600

ttgttggtta tctggtgtgg agtaagtgca cttagcatgc tgacttgctc 650

atcagttttg cacagtggca attttgggac tgatttagaa cagaaactcc 700

attggaaccc cgaggacaaa ggttatgtgc ttcacatgat cactactgca 750

gcagaatggt ctatgtcatt ttccttcttt ggtttttttcc tgacttacat 800

tcgtgatttt cagaaaattt ctttacgggt ggaagccaat ttacatggat 850

taaccctcta tgacactgca ccttgcccta ttaacaatga acgaacacgg 900

ctactttcca gagatatttg atgaaaggat aaaatatttc tgtaatgatt 950

atgattctca gggattgggg aaaggttcac agaagttgct tattcttctc 1000

tgaaattttc aaccacttaa tcaaggctga cagtaacact gatgaatgct 1050

gataatcagg aaacatgaaa gaagccattt gatagattat tctaaaggat 1100

atcatcaaga agactattaa aaacacctat gcctatactt ttttatctca 1150

gaaaataaag tcaaaagact atg 1173
```

<210> 23
<211> 266
<212> PRT
<213> Homo sapiens

<400> 23
```
Met Trp Trp Phe Gln Gln Gly Leu Ser Phe Leu Pro Ser Ala Leu
 1               5                  10                  15

Val Ile Trp Thr Ser Ala Ala Phe Ile Phe Ser Tyr Ile Thr Ala
                20                  25                  30

Val Thr Leu His His Ile Asp Pro Ala Leu Pro Tyr Ile Ser Asp
                35                  40                  45

Thr Gly Thr Val Ala Pro Glu Lys Cys Leu Phe Gly Ala Met Leu
                50                  55                  60

Asn Ile Ala Ala Val Leu Cys Ile Ala Thr Ile Tyr Val Arg Tyr
                65                  70                  75

Lys Gln Val His Ala Leu Ser Pro Glu Glu Asn Val Ile Ile Lys
                80                  85                  90

Leu Asn Lys Ala Gly Leu Val Leu Gly Ile Leu Ser Cys Leu Gly
                95                  100                 105

Leu Ser Ile Val Ala Asn Phe Gln Lys Thr Thr Leu Phe Ala Ala
                110                 115                 120

His Val Ser Gly Ala Val Leu Thr Phe Gly Met Gly Ser Leu Tyr
                125                 130                 135
```

```
Met Phe Val Gln Thr Ile Leu Ser Tyr Gln Met Gln Pro Lys Ile
                140                 145                 150

His Gly Lys Gln Val Phe Trp Ile Arg Leu Leu Leu Val Ile Trp
                155                 160                 165

Cys Gly Val Ser Ala Leu Ser Met Leu Thr Cys Ser Ser Val Leu
                170                 175                 180

His Ser Gly Asn Phe Gly Thr Asp Leu Glu Gln Lys Leu His Trp
                185                 190                 195

Asn Pro Glu Asp Lys Gly Tyr Val Leu His Met Ile Thr Thr Ala
                200                 205                 210

Ala Glu Trp Ser Met Ser Phe Ser Phe Phe Gly Phe Phe Leu Thr
                215                 220                 225

Tyr Ile Arg Asp Phe Gln Lys Ile Ser Leu Arg Val Glu Ala Asn
                230                 235                 240

Leu His Gly Leu Thr Leu Tyr Asp Thr Ala Pro Cys Pro Ile Asn
                245                 250                 255

Asn Glu Arg Thr Arg Leu Leu Ser Arg Asp Ile
                260                 265
```

<210> 24
<211> 485
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 14, 484
<223> unknown base

<400> 24

```
cggacgcttg ggcngcgcca gcggccagcg ctagtcggtc tggtaagtgc 50

ctgatgccga gttccgtctc tcgggtcttt tcctggtccc aggcaaagcg 100

gagcggagat cctcaaacgg cctagtgctt cgcgcttccg gagaaaatca 150

gcggtctaat taattcctct ggtttgttga agcagttacc aagaatcttc 200

aaccctttcc cacaaaagct aattgagtac acgttcctgt tgagtacacg 250

ttcctgttga tttacaaaag gtgcaggtat gagcaggtct gaagactaac 300

attttgtgaa gttgtaaaac agaaaacctg ttagaaatgt ggtggtttca 350

gcaaggcctc agtttccttc cttcagccct tgtaatttgg acatctgctg 400

ctttcatatt ttcatacatt actgcagtaa cactccacca tatagacccg 450

gctttacctt atatcagtga cactggtaca gtanc 485
```

<210> 25
<211> 40
<212> DNA
<213> Artificial Sequence

30

```
<220>
<223> Synthetic oligonucleotide probe

<400> 25
 acctgttaga aatgtggtgg tttcagcaag gcctcagttt 40

<210> 26
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 26
 ggagatagct gctatgggtt cttcaggcac aacttaacat gggaag 46

<210> 27
<211> 1399
<212> DNA
<213> Homo sapiens

<400> 27
 cccacgcgtc cgcccgccgc tgcgtcccgg agtgcaagtg agcttctcgg 50

 ctgccccgcg ggccggggtg cggagccgac atgcgcccgc ttctcggcct 100

 ccttctggtc ttcgccggct gcaccttcgc cttgtacttg ctgtcgacgc 150

 gactgccccg cgggcggaga ctgggctcca ccgaggaggc tggaggcagg 200

 tcgctgtggt tcccctccga cctggcagag ctgcgggagc tctctgaggt 250

 ccttcgagag taccggaagg agcaccaggc ctacgtgttc ctgctcttct 300

 gcggcgccta cctctacaaa cagggctttg ccatccccgg ctccagcttc 350

 ctgaatgttt tagctggtgc cttgtttggg ccatggctgg ggcttctgct 400

 gtgctgtgtg ttgacctcgg tgggtgccac atgctgctac ctgctctcca 450

 gtatttttgg caaacagttg gtggtgtcct actttcctga taaagtggcc 500

 ctgctgcaga gaaaggtgga ggagaacaga aacagcttgt tttttttctt 550

 attgttttg agacttttcc ccatgacacc aaactggttc ttgaacctct 600

 cggccccaat tctgaacatt cccatcgtgc agttcttctt ctcagttctt 650

 atcggtttga tcccatataa tttcatcgt gtgcagacag ggtccatcct 700

 gtcaacccta acctctctgg atgctctttt ctcctgggac actgtcttta 750

 agctgttggc cattgccatg gtggcattaa ttcctggaac cctcattaaa 800

 aaatttagtc agaaacatct gcaattgaat gaaacaagta ctgctaatca 850

 tatacacagt agaaaagaca catgatctgg attttctgtt tgccacatcc 900

 ctggactcag ttgcttattt gtgtaatgga tgtggtcctc taaagcccct 950

 cattgttttt gattgccttc tataggtgat gtggacactg tgcatcaatg 1000
```

31

```
tgcagtgtct tttcagaaag gacactctgc tcttgaaggt gtattacatc 1050

aggttttcaa accagccctg gtgtagcaga cactgcaaca gatgcctcct 1100

agaaaatgct gtttgtggcc gggcgcggtg gctcacgcct gtaatcccag 1150

cactttggga ggccgaggcc ggtgattcac aaggtcagga gttcaagacc 1200

agcctggcca agatggtgaa atcctgtctc taataaaaat acaaaaatta 1250

gccaggcgtg gtggcaggca cctgtaatcc cagctactcg ggaggctgag 1300

gcaggagaat tgcttgaacc aaggtggcag aggttgcagt aagccaagat 1350

cacaccactg cactccagcc tgggtgatag agtgagacac tgtcttgac 1399
```

<210> 28
<211> 264
<212> PRT
<213> Homo sapiens

<400> 28
```
Met Arg Pro Leu Leu Gly Leu Leu Leu Val Phe Ala Gly Cys Thr
 1               5                  10                  15

Phe Ala Leu Tyr Leu Leu Ser Thr Arg Leu Pro Arg Gly Arg Arg
                20                  25                  30

Leu Gly Ser Thr Glu Glu Ala Gly Gly Arg Ser Leu Trp Phe Pro
                35                  40                  45

Ser Asp Leu Ala Glu Leu Arg Glu Leu Ser Glu Val Leu Arg Glu
                50                  55                  60

Tyr Arg Lys Glu His Gln Ala Tyr Val Phe Leu Leu Phe Cys Gly
                65                  70                  75

Ala Tyr Leu Tyr Lys Gln Gly Phe Ala Ile Pro Gly Ser Ser Phe
                80                  85                  90

Leu Asn Val Leu Ala Gly Ala Leu Phe Gly Pro Trp Leu Gly Leu
                95                  100                 105

Leu Leu Cys Cys Val Leu Thr Ser Val Gly Ala Thr Cys Cys Tyr
                110                 115                 120

Leu Leu Ser Ser Ile Phe Gly Lys Gln Leu Val Val Ser Tyr Phe
                125                 130                 135

Pro Asp Lys Val Ala Leu Leu Gln Arg Lys Val Glu Glu Asn Arg
                140                 145                 150

Asn Ser Leu Phe Phe Phe Leu Leu Phe Leu Arg Leu Phe Pro Met
                155                 160                 165

Thr Pro Asn Trp Phe Leu Asn Leu Ser Ala Pro Ile Leu Asn Ile
                170                 175                 180

Pro Ile Val Gln Phe Phe Phe Ser Val Leu Ile Gly Leu Ile Pro
                185                 190                 195

Tyr Asn Phe Ile Cys Val Gln Thr Gly Ser Ile Leu Ser Thr Leu
                200                 205                 210
```

32

```
Thr Ser Leu Asp Ala Leu Phe Ser Trp Asp Thr Val Phe Lys Leu
             215                 220                 225

Leu Ala Ile Ala Met Val Ala Leu Ile Pro Gly Thr Leu Ile Lys
             230                 235                 240

Lys Phe Ser Gln Lys His Leu Gln Leu Asn Glu Thr Ser Thr Ala
             245                 250                 255

Asn His Ile His Ser Arg Lys Asp Thr
             260
```

<210> 29
<211> 1292
<212> DNA
<213> Homo sapiens

<400> 29

```
ccgaggcggg aggagcccga gggggcgcga gccccgcatg aatcattgta 50

gtcaatcatt ttccagttct cagccgctca gttgtgatca agggacacgt 100

ggtttccgaa ctgccagctc agaataggaa aataacttgg gattttatat 150

tggaagacat ggatcttgct gccaacgaga tcagcattta tgacaaactt 200

tcagagactg ttgatttggt gagacagacc ggccatcagt gtggcatgtc 250

agagaaggca attgaaaaat ttatcagaca gctgctggaa aagaatgaac 300

ctcagagacc cccccgcag tatcctctcc ttatagttgt gtataaggtt 350

ctcgcaacct tgggattaat cttgctcact gcctactttg tgattcaacc 400

tttcagccca ttagcacctg agccagtgct ttctggagct cacacctggc 450

gctcactcat ccatcacatt aggctgatgt ccttgcccat tgccaagaag 500

tacatgtcag aaaataaggg agttcctctg catggggggtg atgaagacag 550

acccttttcca gactttgacc cctggtggac aaacgactgt gagcagaatg 600

agtcagagcc cattcctgcc aactgcactg gctgtgccca gaaacacctg 650

aaggtgatgc tcctggaaga cgccccaagg aaatttgaga ggctccatcc 700

actggtgatc aagacgggaa agcccctgtt ggaggaagag attcagcatt 750

ttttgtgcca gtaccctgag gcgacagaag gcttctctga agggttttttc 800

gccaagtggt ggcgctgctt tcctgagcgg tggttcccat ttccttatcc 850

atggaggaga cctctgaaca gatcacaaat gttacgtgag ctttttcctg 900

ttttcactca cctgccattt ccaaaagatg cctctttaaa caagtgctcc 950

tttcttcacc cagaacctgt tgtggggagt aagatgcata agatgcctga 1000

cctatttatc attggcagcg gtgaggccat gttgcagctc atccctccct 1050

tccagtgccg aagacattgt cagtctgtgg ccatgccaat agagccaggg 1100

gatatcggct atgtcgacac cacccactgg aaggtctacg ttatagccag 1150
```

33

```
    aggggtccag cctttggtca tctgcgatgg aaccgctttc tcagaactgt 1200

    aggaaataga actgtgcaca ggaacagctt ccagagccga aaaccaggtt 1250

    gaaaggggaa aaataaaaac aaaaacgatg aaactgcaaa aa 1292
```

<210> 30
<211> 347
<212> PRT
<213> Homo sapiens

<400> 30

```
Met Asp Leu Ala Ala Asn Glu Ile Ser Ile Tyr Asp Lys Leu Ser
 1               5                  10                  15

Glu Thr Val Asp Leu Val Arg Gln Thr Gly His Gln Cys Gly Met
                20              .   25                  30

Ser Glu Lys Ala Ile Glu Lys Phe Ile Arg Gln Leu Leu Glu Lys
                35                  40                  45

Asn Glu Pro Gln Arg Pro Pro Pro Gln Tyr Pro Leu Leu Ile Val
                50                  55                  60

Val Tyr Lys Val Leu Ala Thr Leu Gly Leu Ile Leu Leu Thr Ala
                65                  70                  75

Tyr Phe Val Ile Gln Pro Phe Ser Pro Leu Ala Pro Glu Pro Val
                80                  85                  90

Leu Ser Gly Ala His Thr Trp Arg Ser Leu Ile His His Ile Arg
                95                  100                 105

Leu Met Ser Leu Pro Ile Ala Lys Lys Tyr Met Ser Clu Asn Lys
                110                 115                 120

Gly Val Pro Leu His Gly Gly Asp Glu Asp Arg Pro Phe Pro Asp
                125                 130                 135

Phe Asp Pro Trp Trp Thr Asn Asp Cys Glu Gln Asn Glu Ser Glu
                140                 145                 150

Pro Ile Pro Ala Asn Cys Thr Gly Cys Ala Gln Lys His Leu Lys
                155                 160                 165

Val Met Leu Leu Glu Asp Ala Pro Arg Lys Phe Glu Arg Leu His
                170                 175                 180

Pro Leu Val Ile Lys Thr Gly Lys Pro Leu Leu Glu Glu Glu Ile
                185                 190                 195

Gln His Phe Leu Cys Gln Tyr Pro Glu Ala Thr Glu Gly Phe Ser
                200                 205                 210

Glu Gly Phe Phe Ala Lys Trp Trp Arg Cys Phe Pro Glu Arg Trp
                215                 220                 225

Phe Pro Phe Pro Tyr Pro Trp Arg Arg Pro Leu Asn Arg Ser Gln
                230                 235                 240

Met Leu Arg Glu Leu Phe Pro Val Phe Thr His Leu Pro Phe Pro
                245                 250                 255
```

```
Lys Asp Ala Ser Leu Asn Lys Cys Ser Phe Leu His Pro Glu Pro
                260                 265                 270

Val Val Gly Ser Lys Met His Lys Met Pro Asp Leu Phe Ile Ile
                275                 280                 285

Gly Ser Gly Glu Ala Met Leu Gln Leu Ile Pro Pro Phe Gln Cys
                290                 295                 300

Arg Arg His Cys Gln Ser Val Ala Met Pro Ile Glu Pro Gly Asp
                305                 310                 315

Ile Gly Tyr Val Asp Thr Thr His Trp Lys Val Tyr Val Ile Ala
                320                 325                 330

Arg Gly Val Gln Pro Leu Val Ile Cys Asp Gly Thr Ala Phe Ser
                335                 340                 345

Glu Leu
```

<210> 31
<211> 478
<212> DNA
<213> Homo sapiens

<400> 31
```
 ccacggtgtc cgttcttcgc ccggcggcag ctgtccccga ggcgggagga 50

 gcccgagggg cgcgagcccc gcatgaatca ttgtagtcaa tcattttcca 100

 gttctcagcc gttcagttgt gatcaaggga cacgtggttt ccgaactgcc 150

 agctcagaat aggaaaataa cttgggattt tatattggaa gacatggatc 200

 ttgctgccaa cgagatcagc atttatgaca aactttcaga gactgttgat 250

 ttggtgagac agaccggcca tcagtgtggc atgtcagaga aggcaattga 300

 aaaatttatc agacagctgc tggaaaagaa tgaacctcag agaccccccc 350

 cgcagtatcc tctccttata gttgtgtata aggttctcgc aaccttggga 400

 ttaatcttgc tcactgccta ctttgtgatt caacctttca gcccattagc 450

 acctgagcca gtgctttgtg gagctcac 478
```

<210> 32
<211> 3531
<212> DNA
<213> Homo sapiens

<400> 32
```
 cccacgcgtc cgcccacgcg tccggctgaa cacctcttct ttggagtcag 50

 ccactgatga ggcagggtcc ccacttgcag ctgcagcagc tgcagcagct 100

 gcagagcgct gctcctggct ggtgccactg gtgcgcacgc tgctagaccg 150

 tgcctatgag ccgctggggc tgcagtgggg actgccctcc ctgccaccca 200

 ccaatggcag ccccaccttc tttgaagact tccaggcttt ttgtgccaca 250
```

35

```
cccgaatggc gccacttcat cgacaaacag gtacagccaa ccatgtccca 300

gttcgaaatg gacacgtatg ctaagagcca cgaccttatg tcaggtttct 350

ggaatgcctg ctatgacatg cttatgagca gtgggcagcg gcgccagtgg 400

gagcgcgccc agagtcgtcg ggccttccag gagctggtgc tggaacctgc 450

gcagaggcgg gcgcgcctgg aggggctacg ctacacggca gtgctgaagc 500

agcaggcaac gcagcactcc atggccctgc tgcactgggg ggcgctgtgg 550

cgccagctcg ccagcccatg tggggcctgg gcgctgaggg acactcccat 600

cccccgctgg aaactgtcca gcgccgagac atattcacgc atgcgtctga 650

agctggtgcc caaccatcac ttcgaccctc acctggaagc cagcgctctc 700

cgagacaatc tgggtgaggt tcccctgaca cccaccgagg aggcctcact 750

gcctctggca gtgaccaaag aggccaaagt gagcacccca cccgagttgc 800

tgcaggagga ccagctcggc gaggacgagc tggctgagct ggagaccccg 850

atggaggcag cagaactgga tgagcagcgt gagaagctgg tgctgtcggc 900

cgagtgccag ctggtgacgg tagtggccgt ggtcccaggg ctgctggagg 950

tcaccacaca gaatgtatac ttctacgatg gcagcactga gcgcgtggaa 1000

accgaggagg gcatcggcta tgatttccgg cgcccactgg cccagctgcg 1050

tgaggtccac ctgcggcgtt tcaacctgcg ccgttcagca cttgagctct 1100

tctttatcga tcaggccaac tacttcctca acttcccatg caaggtgggc 1150

acgaccccag tctcatctcc tagccagact ccgagacccc agcctggccc 1200

catcccaccc catacccagg tacggaacca ggtgtactcg tggctcctgc 1250

gcctacggcc ccctctcaa ggctacctaa gcagccgctc cccccaggag 1300

atgctgcgtg cctcaggcct tacccagaaa tgggtacagc gtgagatatc 1350

caacttcgag tacttgatgc aactcaacac cattgcgggg cggacctaca 1400

atgacctgtc tcagtaccct gtgttcccct gggtcctgca ggactacgtg 1450

tccccaaccc tggacctcag caacccagcc gtcttccggg acctgtctaa 1500

gcccatcggt gtggtgaacc ccaagcatgc ccagctcgtg agggagaagt 1550

atgaaagctt tgaggaccca gcaggagacca ttgacaagtt ccactatggc 1600

acccactact ccaatgcagc aggcgtgatg cactacctca tccgcgtgga 1650

gcccttcacc tccctgcacg tccagctgca aagtggccgc tttgactgct 1700

ccgaccggca gttccactcg gtggcggcag cctggcaggc acgcctggag 1750

agccctgccg atgtgaagga gctcatcccg gaattcttct actttcctga 1800

cttcctggag aaccagaacg gttttgacct gggctgtctc cagctgacca 1850
```

36

```
acgagaaggt aggcgatgtg gtgctacccc cgtgggccag ctctcctgag 1900

gacttcatcc agcagcaccg ccaggctctg gagtcggagt atgtgtctgc 1950

acacctacac gagtggatcg acctcatctt tggctacaag cagcgggggc 2000

cagccgccga ggaggccctc aatgtcttct attactgcac ctatgagggg 2050

gctgtagacc tggaccatgt gacagatgag cgggaacgga aggctctgga 2100

gggcattatc agcaactttg ggcagactcc ctgtcagctg ctgaaggagc 2150

cacatccaac tcggctctca gctgaggaag cagcccatcg ccttgcacgc 2200

ctggacacta actcacctag catcttccag cacctggacg aactcaaggc 2250

attcttcgca gaggtgactg tgagtgccag tgggctgctg ggcacccaca 2300

gctggttgcc ctatgaccgc aacataagca actacttcag cttcagcaaa 2350

gaccccacca tgggcagcca caagacgcag cgactgctga gtggcccgtg 2400

ggtgccaggc agtggtgtga gtggacaagc actggcagtg gccccggatg 2450

gaaagctgct attcagcggt ggccactggg atggcagcct gcgggtgact 2500

gcactacccc gtggcaagc gttgagccag ctcagctgcc accttgatgt 2550

agtaacctgc cttgcactgg acacctgtgg catctacctc atctcaggct 2600

cccgggacac cacgtgcatg gtgtggcggc tcctgcatca gggtggtctg 2650

tcagtaggcc tggcaccaaa gcctgtgcag gtcctgtatg ggcatggggc 2700

tgcagtgagc tgtgtggcca tcagcactga acttgacatg gctgtgtctg 2750

gatctgagga tggaactgtg atcatacaca ctgtacgccg cggacagttt 2800

gtagcggcac tacggcctct gggtgccaca ttccctggac ctattttcca 2850

cctggcattg gggtccgaag gccagattgt ggtacagagc tcagcgtggg 2900

aacgtcctgg ggcccaggtc acctactcct tgcacctgta ttcagtcaat 2950

gggaagttgc gggcttcact gcccctggca gagcagccta cagccctgac 3000

ggtgacagag gactttgtgt tgctgggcac cgcccagtgc gccctgcaca 3050

tcctccaact aaacacactg ctcccggccg cgcctccctt gcccatgaag 3100

gtggccatcc gcagcgtggc cgtgaccaag gagcgcagcc acgtgctggt 3150

gggcctggag gatggcaagc tcatcgtggt ggtcgcgggg cagccctctg 3200

aggtgcgcag cagccagttc gcgcggaagc tgtggcggtc ctcgcggcgc 3250

atctcccagg tgtcctcggg agagacggaa tacaacccta ctgaggcgcg 3300

ctgaacctgg ccagtccggc tgctcgggcc ccgcccccgg caggcctggc 3350

ccgggaggcc ccgcccagaa gtcggcggga acaccccggg gtgggcagcc 3400

caggggggtga gcggggccca ccctgcccag ctcagggatt ggcgggcgat 3450
```

37

```
gttaccccct cagggattgg cgggcggaag tcccgcccct cgccggctga 3500

ggggccgccc tgagggccag cactggcgtc t 3531
```

<210> 33
<211> 1003
<212> PRT
<213> Homo sapiens

<400> 33

```
Met Ser Gln Phe Glu Met Asp Thr Tyr Ala Lys Ser His Asp Leu
  1               5                  10                  15

Met Ser Gly Phe Trp Asn Ala Cys Tyr Asp Met Leu Met Ser Ser
                 20                  25                  30

Gly Gln Arg Arg Gln Trp Glu Arg Ala Gln Ser Arg Arg Ala Phe
                 35                  40                  45

Gln Glu Leu Val Leu Glu Pro Ala Gln Arg Arg Ala Arg Leu Glu
                 50                  55                  60

Gly Leu Arg Tyr Thr Ala Val Leu Lys Gln Gln Ala Thr Gln His
                 65                  70                  75

Ser Met Ala Leu Leu His Trp Gly Ala Leu Trp Arg Gln Leu Ala
                 80                  85                  90

Ser Pro Cys Gly Ala Trp Ala Leu Arg Asp Thr Pro Ile Pro Arg
                 95                 100                 105

Trp Lys Leu Ser Ser Ala Glu Thr Tyr Ser Arg Met Arg Leu Lys
                110                 115                 120

Leu Val Pro Asn His His Phe Asp Pro His Leu Glu Ala Ser Ala
                125                 130                 135

Leu Arg Asp Asn Leu Gly Glu Val Pro Leu Thr Pro Thr Glu Glu
                140                 145                 150

Ala Ser Leu Pro Leu Ala Val Thr Lys Glu Ala Lys Val Ser Thr
                155                 160                 165

Pro Pro Glu Leu Leu Gln Glu Asp Gln Leu Gly Glu Asp Glu Leu
                170                 175                 180

Ala Glu Leu Glu Thr Pro Met Glu Ala Ala Glu Leu Asp Glu Gln
                185                 190                 195

Arg Glu Lys Leu Val Leu Ser Ala Glu Cys Gln Leu Val Thr Val
                200                 205                 210

Val Ala Val Val Pro Gly Leu Leu Glu Val Thr Thr Gln Asn Val
                215                 220                 225

Tyr Phe Tyr Asp Gly Ser Thr Glu Arg Val Glu Thr Glu Glu Gly
                230                 235                 240

Ile Gly Tyr Asp Phe Arg Arg Pro Leu Ala Gln Leu Arg Glu Val
                245                 250                 255

His Leu Arg Arg Phe Asn Leu Arg Arg Ser Ala Leu Glu Leu Phe
                260                 265                 270
```

38

```
Phe Ile Asp Gln Ala Asn Tyr Phe Leu Asn Phe Pro Cys Lys Val
             275                 280                 285

Gly Thr Thr Pro Val Ser Ser Pro Ser Gln Thr Pro Arg Pro Gln
             290                 295                 300

Pro Gly Pro Ile Pro Pro His Thr Gln Val Arg Asn Gln Val Tyr
             305                 310                 315

Ser Trp Leu Leu Arg Leu Arg Pro Pro Ser Gln Gly Tyr Leu Ser
             320                 325                 330

Ser Arg Ser Pro Gln Glu Met Leu Arg Ala Ser Gly Leu Thr Gln
             335                 340                 345

Lys Trp Val Gln Arg Glu Ile Ser Asn Phe Glu Tyr Leu Met Gln
             350                 355                 360

Leu Asn Thr Ile Ala Gly Arg Thr Tyr Asn Asp Leu Ser Gln Tyr
             365                 370                 375

Pro Val Phe Pro Trp Val Leu Gln Asp Tyr Val Ser Pro Thr Leu
             380                 385                 390

Asp Leu Ser Asn Pro Ala Val Phe Arg Asp Leu Ser Lys Pro Ile
             395                 400                 405

Gly Val Val Asn Pro Lys His Ala Gln Leu Val Arg Glu Lys Tyr
             410                 415                 420

Glu Ser Phe Glu Asp Pro Ala Gly Thr Ile Asp Lys Phe His Tyr
             425                 430                 435

Gly Thr His Tyr Ser Asn Ala Ala Gly Val Met His Tyr Leu Ile
             440                 445                 450

Arg Val Glu Pro Phe Thr Ser Leu His Val Gln Leu Gln Ser Gly
             455                 460                 465

Arg Phe Asp Cys Ser Asp Arg Gln Phe His Ser Val Ala Ala Ala
             470                 475                 480

Trp Gln Ala Arg Leu Glu Ser Pro Ala Asp Val Lys Glu Leu Ile
             485                 490                 495

Pro Glu Phe Phe Tyr Phe Pro Asp Phe Leu Glu Asn Gln Asn Gly
             500                 505                 510

Phe Asp Leu Gly Cys Leu Gln Leu Thr Asn Glu Lys Val Gly Asp
             515                 520                 525

Val Val Leu Pro Pro Trp Ala Ser Ser Pro Glu Asp Phe Ile Gln
             530                 535                 540

Gln His Arg Gln Ala Leu Glu Ser Glu Tyr Val Ser Ala His Leu
             545                 550                 555

His Glu Trp Ile Asp Leu Ile Phe Gly Tyr Lys Gln Arg Gly Pro
             560                 565                 570

Ala Ala Glu Glu Ala Leu Asn Val Phe Tyr Tyr Cys Thr Tyr Glu
             575                 580                 585
```

```
Gly Ala Val Asp Leu Asp His Val Thr Asp Glu Arg Glu Arg Lys
                590             595                     600

Ala Leu Glu Gly Ile Ile Ser Asn Phe Gly Gln Thr Pro Cys Gln
                605             610                     615

Leu Leu Lys Glu Pro His Pro Thr Arg Leu Ser Ala Glu Glu Ala
                620             625                     630

Ala His Arg Leu Ala Arg Leu Asp Thr Asn Ser Pro Ser Ile Phe
                635             640                     645

Gln His Leu Asp Glu Leu Lys Ala Phe Phe Ala Glu Val Thr Val
                650             655                     660

Ser Ala Ser Gly Leu Leu Gly Thr His Ser Trp Leu Pro Tyr Asp
                665             670                     675

Arg Asn Ile Ser Asn Tyr Phe Ser Phe Ser Lys Asp Pro Thr Met
                680             685                     690

Gly Ser His Lys Thr Gln Arg Leu Leu Ser Gly Pro Trp Val Pro
                695             700                     705

Gly Ser Gly Val Ser Gly Gln Ala Leu Ala Val Ala Pro Asp Gly
                710             715                     720

Lys Leu Leu Phe Ser Gly Gly His Trp Asp Gly Ser Leu Arg Val
                725             730                     735

Thr Ala Leu Pro Arg Gly Lys Leu Leu Ser Gln Leu Ser Cys His
                740             745                     750

Leu Asp Val Val Thr Cys Leu Ala Leu Asp Thr Cys Gly Ile Tyr
                755             760                     765

Leu Ile Ser Gly Ser Arg Asp Thr Thr Cys Met Val Trp Arg Leu
                770             775                     780

Leu His Gln Gly Gly Leu Ser Val Gly Leu Ala Pro Lys Pro Val
                785             790                     795

Gln Val Leu Tyr Gly His Gly Ala Ala Val Ser Cys Val Ala Ile
                800             805                     810

Ser Thr Glu Leu Asp Met Ala Val Ser Gly Ser Glu Asp Gly Thr
                815             820                     825

Val Ile Ile His Thr Val Arg Arg Gly Gln Phe Val Ala Ala Leu
                830             835                     840

Arg Pro Leu Gly Ala Thr Phe Pro Gly Pro Ile Phe His Leu Ala
                845             850                     855

Leu Gly Ser Glu Gly Gln Ile Val Val Gln Ser Ser Ala Trp Glu
                860             865                     870

Arg Pro Gly Ala Gln Val Thr Tyr Ser Leu His Leu Tyr Ser Val
                875             880                     885

Asn Gly Lys Leu Arg Ala Ser Leu Pro Leu Ala Glu Gln Pro Thr
                890             895                     900
```

40

```
Ala Leu Thr Val Thr Glu Asp Phe Val Leu Leu Gly Thr Ala Gln
                905                 910                 915

Cys Ala Leu His Ile Leu Gln Leu Asn Thr Leu Leu Pro Ala Ala
                920                 925                 930

Pro Pro Leu Pro Met Lys Val Ala Ile Arg Ser Val Ala Val Thr
                935                 940                 945

Lys Glu Arg Ser His Val Leu Val Gly Leu Glu Asp Gly Lys Leu
                950                 955                 960

Ile Val Val Val Ala Gly Gln Pro Ser Glu Val Arg Ser Ser Gln
                965                 970                 975

Phe Ala Arg Lys Leu Trp Arg Ser Ser Arg Arg Ile Ser Gln Val
                980                 985                 990

Ser Ser Gly Glu Thr Glu Tyr Asn Pro Thr Glu Ala Arg
                995                 1000
```

<210> 34
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 34
 tgactgcact accccgtggc aagctgttga gccagctcag ctg 43

<210> 35
<211> 1395
<212> DNA
<213> Homo sapiens

<400> 35
 cggacgcgtg ggcggacgcg tgggggctgt gagaaagtgc caataaatac 50

 atcatgcaac cccacggccc accttgtgaa ctcctcgtgc ccagggctga 100

 tgtgcgtctt ccagggctac tcatccaaag gcctaatcca acgttctgtc 150

 ttcaatctgc aaatctatgg ggtcctgggg ctcttctgga cccttaactg 200

 ggtactggcc ctgggccaat gcgtcctcgc tggagccttt gcctccttct 250

 actgggcctt ccacaagccc caggacatcc ctaccttccc cttaatctct 300

 gccttcatcc gcacactccg ttaccacact gggtcattgg catttggagc 350

 cctcatcctg acccttgtgc agatagcccg ggtcatcttg gagtatattg 400

 accacaagct cagaggagtg cagaaccctg tagcccgctg catcatgtgc 450

 tgtttcaagt gctgcctctg gtgtctggaa aaatttatca agttcctaaa 500

 ccgcaatgca tacatcatga tcgccatcta cgggaagaat ttctgtgtct 550

 cagccaaaaa tgcgttcatg ctactcatgc gaaacattgt cagggtggtc 600

 gtcctggaca aagtcacaga cctgctgctg ttctttggga agctgctggt 650

41

```
ggtcggaggc gtgggggtcc tgtccttctt tttttctcc ggtcgcatcc 700

cggggctggg taaagacttt aagagccccc acctcaacta ttactggctg 750

cccatcatga cctccatcct gggggcctat gtcatcgcca gcggcttctt 800

cagcgttttc ggcatgtgtg tggacacgct cttcctctgc ttcctggaag 850

acctggagcg gaacaacggc tccctggacc ggccctacta catgtccaag 900

agccttctaa agattctggg caagaagaac gaggcgcccc cggacaacaa 950

gaagaggaag aagtgacagc tccggccctg atccaggact gcaccccacc 1000

cccaccgtcc agccatccaa cctcacttcg ccttacaggt ctccattttg 1050

tggtaaaaaa aggttttagg ccaggcgccg tggctcacgc ctgtaatcca 1100

acactttgag aggctgaggc gggcggatca cctgagtcag gagttcgaga 1150

ccagcctggc caacatggtg aaacctccgt ctctattaaa aatacaaaaa 1200

ttagccgaga gtggtggcat gcacctgtca tcccagctac tcgggaggct 1250

gaggcaggag aatcgcttga acccgggagg cagaggttgc agtgagccga 1300

gatcgcgcca ctgcactcca acctgggtga cagactctgt ctccaaaaca 1350

aaacaaacaa acaaaaagat tttattaaag atattttgtt aactc 1395
```

<210> 36
<211> 321
<212> PRT
<213> Homo sapiens

<400> 36

```
Arg Thr Arg Gly Arg Thr Arg Gly Gly Cys Glu Lys Val Pro Ile
1               5                   10                  15

Asn Thr Ser Cys Asn Pro Thr Ala His Leu Val Asn Ser Ser Cys
            20                  25                  30

Pro Gly Leu Met Cys Val Phe Gln Gly Tyr Ser Ser Lys Gly Leu
            35                  40                  45

Ile Gln Arg Ser Val Phe Asn Leu Gln Ile Tyr Gly Val Leu Gly
            50                  55                  60

Leu Phe Trp Thr Leu Asn Trp Val Leu Ala Leu Gly Gln Cys Val
            65                  70                  75

Leu Ala Gly Ala Phe Ala Ser Phe Tyr Trp Ala Phe His Lys Pro
            80                  85                  90

Gln Asp Ile Pro Thr Phe Pro Leu Ile Ser Ala Phe Ile Arg Thr
            95                  100                 105

Leu Arg Tyr His Thr Gly Ser Leu Ala Phe Gly Ala Leu Ile Leu
            110                 115                 120

Thr Leu Val Gln Ile Ala Arg Val Ile Leu Glu Tyr Ile Asp His
            125                 130                 135
```

42

```
Lys Leu Arg Gly Val Gln Asn Pro Val Ala Arg Cys Ile Met Cys
                140                 145                 150

Cys Phe Lys Cys Cys Leu Trp Cys Leu Glu Lys Phe Ile Lys Phe
                155                 160                 165

Leu Asn Arg Asn Ala Tyr Ile Met Ile Ala Ile Tyr Gly Lys Asn
                170                 175                 180

Phe Cys Val Ser Ala Lys Asn Ala Phe Met Leu Leu Met Arg Asn
                185                 190                 195

Ile Val Arg Val Val Val Leu Asp Lys Val Thr Asp Leu Leu Leu
                200                 205                 210

Phe Phe Gly Lys Leu Leu Val Val Gly Gly Val Gly Val Leu Ser
                215                 220                 225

Phe Phe Phe Phe Ser Gly Arg Ile Pro Gly Leu Gly Lys Asp Phe
                230                 235                 240

Lys Ser Pro His Leu Asn Tyr Tyr Trp Leu Pro Ile Met Thr Ser
                245                 250                 255

Ile Leu Gly Ala Tyr Val Ile Ala Ser Gly Phe Phe Ser Val Phe
                260                 265                 270

Gly Met Cys Val Asp Thr Leu Phe Leu Cys Phe Leu Glu Asp Leu
                275                 280                 285

Glu Arg Asn Asn Gly Ser Leu Asp Arg Pro Tyr Tyr Met Ser Lys
                290                 295                 300

Ser Leu Leu Lys Ile Leu Gly Lys Lys Asn Glu Ala Pro Pro Asp
                305                 310                 315

Asn Lys Lys Arg Lys Lys
                320
```

<210> 37
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 37
 tcgtgcccag gggctgatgt gc 22

<210> 38
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 38
 gtctttaccc agccccggga tgcg 24

<210> 39
<211> 50

43

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 39
 ggcctaatcc aacgttctgt cttcaatctg caaatctatg gggtcctggg 50

<210> 40
<211> 1365
<212> DNA
<213> Homo sapiens

<400> 40
 gagtcttgac cgccgccggg ctcttggtac ctcagcgcga gcgccaggcg 50

 tccggccgcc gtggctatgt tcgtgtccga tttccgcaaa gagttctacg 100

 aggtggtcca gagccagagg gtccttctct tcgtggcctc ggacgtggat 150

 gctctgtgtg cgtgcaagat ccttcaggcc ttgttccagt gtgaccacgt 200

 gcaatatacg ctggttccag tttctgggtg gcaagaactt gaaactgcat 250

 ttcttgagca taaagaacag tttcattatt ttattctcat aaactgtgga 300

 gctaatgtag acctattgga tattcttcaa cctgatgaag acactatatt 350

 ctttgtgtgt gactcccata ggccagtcaa tgtcgtcaat gtatacaacg 400

 atacccagat caaattactc attaaacaag atgatgacct tgaagttccc 450

 gcctatgaag acatcttcag ggatgaagag gaggatgaag agcattcagg 500

 aaatgacagt gatgggtcag agccttctga gaagcgcaca cggttagaag 550

 aggagatagt ggagcaaacc atgcggagga ggcagcggcg agagtgggag 600

 gcccggagaa gagacatcct ctttgactac gagcagtatg aatatcatgg 650

 gacatcgtca gccatggtga tgtttgagct ggcttggatg ctgtccaagg 700

 acctgaatga catgctgtgg tgggccatcg ttggactaac agaccagtgg 750

 gtgcaagaca agatcactca aatgaaatac gtgactgatg ttggtgtcct 800

 gcagcgccac gtttcccgcc acaaccaccg gaacgaggat gaggagaaca 850

 cactctccgt ggactgcaca cggatctcct ttgagtatga cctccgcctg 900

 gtgctctacc agcactggtc cctccatgac agcctgtgca acaccagcta 950

 taccgcagcc aggttcaagc tgtggtctgt gcatggacag aagcggctcc 1000

 aggagttcct tgcagacatg ggtcttcccc tgaagcaggt gaagcagaag 1050

 ttccaggcca tggacatctc cttgaaggag aatttgcggg aaatgattga 1100

 agagtctgca aataaatttg ggatgaagga catgcgcgtg cagactttca 1150

 gcattcattt tgggttcaag cacaagtttc tggccagcga cgtggtcttt 1200

```
gccaccatgt ctttgatgga gagccccgag aaggatggct cagggacaga 1250

tcacttcatc caggctctgg acagcctctc caggagtaac ctggacaagc 1300

tgtaccatgg cctggaactc gccaagaagc agctgcgagc cacccagcag 1350

accattgcca gctgc 1365
```

```
<210> 41
<211> 566
<212> PRT
<213> Homo sapiens

<400> 41
Met Phe Val Ser Asp Phe Arg Lys Glu Phe Tyr Glu Val Val Gln
 1               5                  10                  15

Ser Gln Arg Val Leu Leu Phe Val Ala Ser Asp Val Asp Ala Leu
                20                  25                  30

Cys Ala Cys Lys Ile Leu Gln Ala Leu Phe Gln Cys Asp His Val
                35                  40                  45

Gln Tyr Thr Leu Val Pro Val Ser Gly Trp Gln Glu Leu Glu Thr
                50                  55                  60

Ala Phe Leu Glu His Lys Glu Gln Phe His Tyr Phe Ile Leu Ile
                65                  70                  75

Asn Cys Gly Ala Asn Val Asp Leu Leu Asp Ile Leu Gln Pro Asp
                80                  85                  90

Glu Asp Thr Ile Phe Phe Val Cys Asp Ser His Arg Pro Val Asn
                95                  100                 105

Val Val Asn Val Tyr Asn Asp Thr Gln Ile Lys Leu Leu Ile Lys
                110                 115                 120

Gln Asp Asp Asp Leu Glu Val Pro Ala Tyr Glu Asp Ile Phe Arg
                125                 130                 135

Asp Glu Glu Glu Asp Glu Glu His Ser Gly Asn Asp Ser Asp Gly
                140                 145                 150

Ser Glu Pro Ser Glu Lys Arg Thr Arg Leu Glu Glu Glu Ile Val
                155                 160                 165

Glu Gln Thr Met Arg Arg Arg Gln Arg Arg Glu Trp Glu Ala Arg
                170                 175                 180

Arg Arg Asp Ile Leu Phe Asp Tyr Glu Gln Tyr Glu Tyr His Gly
                185                 190                 195

Thr Ser Ser Ala Met Val Met Phe Glu Leu Ala Trp Met Leu Ser
                200                 205                 210

Lys Asp Leu Asn Asp Met Leu Trp Trp Ala Ile Val Gly Leu Thr
                215                 220                 225

Asp Gln Trp Val Gln Asp Lys Ile Thr Gln Met Lys Tyr Val Thr
                230                 235                 240

Asp Val Gly Val Leu Gln Arg His Val Ser Arg His Asn His Arg
```

45

```
                 245                   250                   255
Asn Glu Asp Glu Glu Asn Thr Leu Ser Val Asp Cys Thr Arg Ile
                 260                   265                   270

Ser Phe Glu Tyr Asp Leu Arg Leu Val Leu Tyr Gln His Trp Ser
                 275                   280                   285

Leu His Asp Ser Leu Cys Asn Thr Ser Tyr Thr Ala Ala Arg Phe
                 290                   295                   300

Lys Leu Trp Ser Val His Gly Gln Lys Arg Leu Gln Glu Phe Leu
                 305                   310                   315

Ala Asp Met Gly Leu Pro Leu Lys Gln Val Lys Gln Lys Phe Gln
                 320                   325                   330

Ala Met Asp Ile Ser Leu Lys Glu Asn Leu Arg Glu Met Ile Glu
                 335                   340                   345

Glu Ser Ala Asn Lys Phe Gly Met Lys Asp Met Arg Val Gln Thr
                 350                   355                   360

Phe Ser Ile His Phe Gly Phe Lys His Lys Phe Leu Ala Ser Asp
                 365                   370                   375

Val Val Phe Ala Thr Met Ser Leu Met Glu Ser Pro Glu Lys Asp
                 380                   385                   390

Gly Ser Gly Thr Asp His Phe Ile Gln Ala Leu Asp Ser Leu Ser
                 395                   400                   405

Arg Ser Asn Leu Asp Lys Leu Tyr His Gly Leu Glu Leu Ala Lys
                 410                   415                   420

Lys Gln Leu Arg Ala Thr Gln Gln Thr Ile Ala Ser Cys Leu Cys
                 425                   430                   435

Thr Asn Leu Val Ile Ser Gln Gly Pro Phe Leu Tyr Cys Ser Leu
                 440                   445                   450

Met Glu Gly Thr Pro Asp Val Met Leu Phe Ser Arg Pro Ala Ser
                 455                   460                   465

Leu Ser Leu Leu Ser Lys His Leu Leu Lys Ser Phe Val Cys Ser
                 470                   475                   480

Thr Lys Asn Arg Arg Cys Lys Leu Leu Pro Leu Val Met Ala Ala
                 485                   490                   495

Pro Leu Ser Met Glu His Gly Thr Val Thr Val Val Gly Ile Pro
                 500                   505                   510

Pro Glu Thr Asp Ser Ser Asp Arg Lys Asn Phe Phe Gly Arg Ala
                 515                   520                   525

Phe Glu Lys Ala Ala Glu Ser Thr Ser Ser Arg Met Leu His Asn
                 530                   535                   540

His Phe Asp Leu Ser Val Ile Glu Leu Lys Ala Glu Asp Arg Ser
                 545                   550                   555

Lys Phe Leu Asp Ala Leu Ile Ser Leu Leu Ser
```

```
<210> 42
<211> 380
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 44, 118, 172, 183
<223> unknown base

<400> 42
 gtacctcagc gcgagcgcca ggcgtccggc cgccgtggct atgntcgtgt 50

 ccgatttccg caaagagttc tacgaggtgg tccagagcca gagggtcctt 100

 ctcttcgtgg cctcggangt ggatgctctg tgtgcgtgca agatccttca 150

 ggccttgttc cagtgtgacc angtgcaata tangctggtt ccagtttctg 200

 ggtggcaaga acttgaaact gcatttcttg agcataaaga acagtttcat 250

 tattttattc tcataaactg tggagctaat gtagacctat tggatattct 300

 tcaacctgat gaagacacta tattctttgt gtgtgacacc cataggccag 350

 tcaatgttgt caatgtatac aacgataccc 380

<210> 43
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 43
 ttccgcaaag agttctacga ggtgg 25

<210> 44
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 44
 attgacaaca ttgactggcc tatggg 26

<210> 45
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 45
 gtggatgctc tgtgtgcgtg caagatcctt caggccttgt tccagtgtga 50

<210> 46
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47

<400> 46

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caggaaccct ctctttgggt ctggattggg accccttttcc agtaccattt 50

tttctagtga accacgaagg gacgatacca gaaaacaccc tcaacccaaa 100

ggaaatagac tacagcccca attggctgac tttggctata gaaaaaagaa 150

aggaacgaaa agagacagtt tttttttggaa agctaagtct tccctttatc 200

gagtcaagaa acccccccctt cttgagctat ttacagcttt taacaattga 250

gtaaagtacg ctccggtcac catggtgaca gccgccctgg gtcccgtctg 300

ggcagcgctc ctgctctttc tcctgatgtg tgagatccgt atggtggagc 350

tcaccttttga cagagctgtg gccagcggct gccaacggtg ctgtgactct 400

gaggacccccc tggatcctgc ccatgtatcc tcagcctctt cctccggccg 450

cccccacgcc ctgcctgaga tcagaccccta cattaatatc accatcctga 500

agggtgacaa aggggaccca ggcccaatgg gcctgccagg gtacatgggc 550

agggagggtc cccaaggggga gcctggccct cagggcagca agggtgacaa 600

gggggagatg ggcagccccg gcgccccgtg ccagaagcgc ttcttcgcct 650

tctcagtggg ccgcaagacg gccctgcaca gcggcgagga cttccagacg 700

ctgctcttcg aaagggtctt tgtgaacctt gatgggtgct ttgacatggc 750

gaccggccag tttgctgctc ccctgcgtgg catctacttc ttcagcctca 800

atgtgcacag ctggaattac aaggagacgt acgtgcacat tatgcataac 850

cagaaagagg ctgtcatcct gtacgcgcag cccagcgagc gcagcatcat 900

gcagagccag agtgtgatgc tggacctggc ctacgggggac cgcgtctggg 950

tgcggctctt caagcgccag cgcgagaacg ccatctacag caacgacttc 1000

gacacctaca tcaccttcag cggccacctc atcaaggccg aggacgactg 1050

agggcctctg ggccaccctc ccggctggag agctcaggtg ctggtcccgt 1100

cccctgcagg gctcagtttg cactgctgtg aagcaggaag gccagggagg 1150

tccccggggga cctggcattc tggggagacc ctgcttctat cttggctgcc 1200

atcatccctc ccagcctatt tctgctcctc tcttctctct tggacctatt 1250

ttaagaagct tgctaaccta aatattctag aactttccca gcctcgtagc 1300

ccagcacttc tcaaacttgg aaatgcatgc gaatcacccg gggttcgtgt 1350

taaatgcaga ttctgactca gcaggtctga gtgggtccag gattctgtgt 1400

ttctcatatg ttcctgggtg atgctgatgg ggtcagtcta tgaaccacac 1450
```

48

```
tggagcaacc aggttctagg actttctcaa tattctagta ctttctgaac 1500

attctggaat cctccccaca ttctagaatt ctcccaacat tttttttttct 1550

tgagacagag tcttgctctg ttgcccaggc tagagtgcag tggtgcaatc 1600

tcagttcact gcaacctctg cctcccgggt tcaagcgatt cttctgcctc 1650

agcctcccta gtggctggga ttacaggcgc ctgctaccat gcctggctaa 1700

tttttgtatt tttagtagag atggggtttc accatattgg ccaggctggt 1750

cttgaactcc tgacttcagg tgacccaccc gcctcggcct ctcaaaatgc 1800

tgggattaca ggtgtgagcc accgtgcctg gccaattcca acattcttaa 1850

attctctcat ccctccaggg ctccccgtgc tatgttctct ttaccccttc 1900

cccctcttct cttgctcagg cctgcaccac tgcagccacc gttcatttat 1950

tcattcatta aacactgagc actcactctg tgctgggtcc cgggaagggt 2000

gagggggtca gacacaggcc ctgcccctgc cctcagtgac tggccagtcc 2050

agcccaggcg gggagagatg tgtacatagg ttttaaagca gacccagagc 2100

tcatgggggc ctgtgttctg ggtgttcagg tgctgctggt cctccattac 2150

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aaacagggtc tgaccaagtg ccaggaagac ctgtgctata aaccaccctg 3000

cctgatcctg cccctgcctg accccgccac gccctgccgt ccagcatgat 3050
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49

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<210> 47
<211> 259
<212> PRT
<213> Homo sapiens

<220>
<221> Signal Peptide
<222> 1-20
<223> Signal Peptide

<220>
<221> N-glycosylation Site
<222> 72-75
<223> N-glycosylation Site

<220>
<221> C1q Domain Proteins
<222> 144-178, 78-111, 84-117
<223> C1q Domain Proteins

<400> 47
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Met Val Thr Ala Ala Leu Gly Pro Val Trp Ala Ala Leu Leu Leu
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Phe Leu Leu Met Cys Glu Ile Arg Met Val Glu Leu Thr Phe Asp
                20                  25                  30

Arg Ala Val Ala Ser Gly Cys Gln Arg Cys Cys Asp Ser Glu Asp
                35                  40                  45

Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg
                50                  55                  60

Pro His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile
                65                  70                  75

Leu Lys Gly Asp Lys Gly Asp Pro Gly Pro Met Gly Leu Pro Gly
                80                  85                  90

Tyr Met Gly Arg Glu Gly Pro Gln Gly Glu Pro Gly Pro Gln Gly
                95                  100                 105

Ser Lys Gly Asp Lys Gly Glu Met Gly Ser Pro Gly Ala Pro Cys
                110                 115                 120

Gln Lys Arg Phe Phe Ala Phe Ser Val Gly Arg Lys Thr Ala Leu
                125                 130                 135

His Ser Gly Glu Asp Phe Gln Thr Leu Leu Phe Glu Arg Val Phe
                140                 145                 150

Val Asn Leu Asp Gly Cys Phe Asp Met Ala Thr Gly Gln Phe Ala
                155                 160                 165

Ala Pro Leu Arg Gly Ile Tyr Phe Phe Ser Leu Asn Val His Ser
                170                 175                 180

Trp Asn Tyr Lys Glu Thr Tyr Val His Ile Met His Asn Gln Lys
                185                 190                 195

Glu Ala Val Ile Leu Tyr Ala Gln Pro Ser Glu Arg Ser Ile Met
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50

Gln Ser Gln Ser Val Met Leu Asp Leu Ala Tyr Gly Asp Arg Val
                215   220   225

Trp Val Arg Leu Phe Lys Arg Gln Arg Glu Asn Ala Ile Tyr Ser
                230   235   240

Asn Asp Phe Asp Thr Tyr Ile Thr Phe Ser Gly His Leu Ile Lys
                245   250   255

Ala Glu Asp Asp

<210> 48
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 48
 ccagacgctg ctcttcgaaa gggtc 25

<210> 49
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 49
 ggtccccgta ggccaggtcc agc 23

<210> 50
<211> 50
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 50
 ctacttcttc agcctcaatg tgcacagctg gaattacaag gagacgtacg 50

<210> 51
<211> 2768
<212> DNA
<213> Homo sapiens

<400> 51
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 caggaaagac tgaggccgcg gcctgccccg cccggctccc tgcgccgccg 100

 ccgcctcccg ggacagaaga tgtgctccag ggtccctctg ctgctgccgc 150

 tgctcctgct actggccctg gggcctgggg tgcagggctg cccatccggc 200

 tgccagtgca gccagccaca gacagtcttc tgcactgccc gccagggac 250

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cacggtgccc cgagacgtgc cacccgacac ggtggggctg tacgtctttg 300

agaacggcat caccatgctc gacgcaggca gctttgccgg cctgccgggc 350

ctgcagctcc tggacctgtc acagaaccag atcgccagcc tgcccagcgg 400

ggtcttccag ccactcgcca acctcagcaa cctggacctg acggccaaca 450

ggctgcatga aatcaccaat gagaccttcc gtggcctgcg gcgcctcgag 500

cgcctctacc tgggcaagaa ccgcatccgc cacatccagc ctggtgcctt 550

cgacacgctc gaccgcctcc tggagctcaa gctgcaggac aacgagctgc 600

gggcactgcc cccgctgcgc ctgccccgcc tgctgctgct ggacctcagc 650

cacaacagcc tcctggccct ggagcccggc atcctggaca ctgccaacgt 700

ggaggcgctg cggctggctg gtctggggct gcagcagctg gacgaggggc 750

tcttcagccg cttgcgcaac ctccacgacc tggatgtgtc cgacaaccag 800

ctggagcgag tgccacctgt gatccgaggc ctccggggcc tgacgcgcct 850

gcggctggcc ggcaacaccc gcattgccca gctgcggccc gaggacctgg 900

ccggcctggc tgccctgcag gagctggatg tgagcaacct aagcctgcag 950

gccctgcctg gcgacctctc gggcctcttc ccccgcctgc ggctgctggc 1000

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cctgggtgcg cgagagccac gtcacactgg ccagccctga ggagacgcgc 1100

tgccacttcc cgcccaagaa cgctggccgg ctgctcctgg agcttgacta 1150

cgccgacttt ggctgcccag ccaccaccac cacagccaca gtgcccacca 1200

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cgtccacctg cctcaatggg ggcacatgcc acctggggac acggcaccac 1400

ctggcgtgct tgtgcccga aggcttcacg ggcctgtact gtgagagcca 1450

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aacgccactt actccgtctg tgtcatgcct ttggggcccg ggcgggtgcc 1750

ggagggcgag gaggcctgcg gggaggccca tacaccccca gccgtccact 1800

ccaaccacgc cccagtcacc caggcccgcg agggcaacct gccgctcctc 1850
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52

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attgcgcccg ccctggccgc ggtgctcctg gccgcgctgg ctgcggtggg 1900

ggcagcctac tgtgtgcggc gggggcgggc catggcagca gcggctcagg 1950

acaaagggca ggtggggcca ggggctgggc ccctggaact ggagggagtg 2000

aaggtcccct tggagccagg cccgaaggca acagagggcg gtggagaggc 2050

cctgcccagc gggtctgagt gtgaggtgcc actcatgggc ttcccagggc 2100

ctggcctcca gtcacccctc cacgcaaagc cctacatcta agccagagag 2150

agacagggca gctggggccg ggctctcagc cagtgagatg gccagccccc 2200

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cagacagggc tgtgtgacca cagctgggcc ctgttccctc tggacctcgg 2300

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cagaaccgag tgcctatgag gacagtgtcc gccctgccct ccgcaacgtg 2400

cagtccctgg gcacggcggg ccctgccatg tgctggtaac gcatgcctgg 2450

gtcctgctgg gctctcccac tccaggcgga ccctgggggc cagtgaagga 2500

agctcccgga aagagcagag ggagagcggg taggcggctg tgtgactcta 2550

gtcttggccc caggaagcga aggaacaaaa gaaactggaa aggaagatgc 2600

tttaggaaca tgttttgctt ttttaaaata tatatattta taagagatcc 2650

tttcccattt attctgggaa gatgttttc aaactcagag acaaggactt 2700

tggttttgt aagacaaacg atgatatgaa ggcctttgt aagaaaaaat 2750

aaaagatgaa gtgtgaaa 2768
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<210> 52
<211> 673
<212> PRT
<213> Homo sapiens

<400> 52

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Met Cys Ser Arg Val Pro Leu Leu Leu Pro Leu Leu Leu Leu Leu
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Ala Leu Gly Pro Gly Val Gln Gly Cys Pro Ser Gly Cys Gln Cys
               20                  25                  30

Ser Gln Pro Gln Thr Val Phe Cys Thr Ala Arg Gln Gly Thr Thr
                   35                  40                  45

Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe
                   50                  55                  60

Glu Asn Gly Ile Thr Met Leu Asp Ala Gly Ser Phe Ala Gly Leu
                   65                  70                  75

Pro Gly Leu Gln Leu Leu Asp Leu Ser Gln Asn Gln Ile Ala Ser
                   80                  85                  90

Leu Pro Ser Gly Val Phe Gln Pro Leu Ala Asn Leu Ser Asn Leu
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53

Asp Leu Thr Ala Asn Arg Leu His Glu Ile Thr Asn Glu Thr Phe
                110   115   120

Arg Gly Leu Arg Arg Leu Glu Arg Leu Tyr Leu Gly Lys Asn Arg
                125   130   135

Ile Arg His Ile Gln Pro Gly Ala Phe Asp Thr Leu Asp Arg Leu
                140   145   150

Leu Glu Leu Lys Leu Gln Asp Asn Glu Leu Arg Ala Leu Pro Pro
                155   160   165

Leu Arg Leu Pro Arg Leu Leu Leu Leu Asp Leu Ser His Asn Ser
                170   175   180

Leu Leu Ala Leu Glu Pro Gly Ile Leu Asp Thr Ala Asn Val Glu
                185   190   195

Ala Leu Arg Leu Ala Gly Leu Gly Leu Gln Gln Leu Asp Glu Gly
                200   205   210

Leu Phe Ser Arg Leu Arg Asn Leu His Asp Leu Asp Val Ser Asp
                215   220   225

Asn Gln Leu Glu Arg Val Pro Pro Val Ile Arg Gly Leu Arg Gly
                230   235   240

Leu Thr Arg Leu Arg Leu Ala Gly Asn Thr Arg Ile Ala Gln Leu
                245   250   255

Arg Pro Glu Asp Leu Ala Gly Leu Ala Ala Leu Gln Glu Leu Asp
                260   265   270

Val Ser Asn Leu Ser Leu Gln Ala Leu Pro Gly Asp Leu Ser Gly
                275   280   285

Leu Phe Pro Arg Leu Arg Leu Leu Ala Ala Ala Arg Asn Pro Phe
                290   295   300

Asn Cys Val Cys Pro Leu Ser Trp Phe Gly Pro Trp Val Arg Glu
                305   310   315

Ser His Val Thr Leu Ala Ser Pro Glu Glu Thr Arg Cys His Phe
                320   325   330

Pro Pro Lys Asn Ala Gly Arg Leu Leu Leu Glu Leu Asp Tyr Ala
                335   340   345

Asp Phe Gly Cys Pro Ala Thr Thr Thr Ala Thr Val Pro Thr
                350   355   360

Thr Arg Pro Val Val Arg Glu Pro Thr Ala Leu Ser Ser Ser Leu
                365   370   375

Ala Pro Thr Trp Leu Ser Pro Thr Ala Pro Ala Thr Glu Ala Pro
                380   385   390

Ser Pro Pro Ser Thr Ala Pro Pro Thr Val Gly Pro Val Pro Gln
                395   400   405

Pro Gln Asp Cys Pro Pro Ser Thr Cys Leu Asn Gly Gly Thr Cys

His Leu Gly Thr Arg His His Leu Ala Cys Leu Cys Pro Glu Gly
                    425   430   435

Phe Thr Gly Leu Tyr Cys Glu Ser Gln Met Gly Gln Gly Thr Arg
                    440   445   450

Pro Ser Pro Thr Pro Val Thr Pro Arg Pro Pro Arg Ser Leu Thr
                    455   460   465

Leu Gly Ile Glu Pro Val Ser Pro Thr Ser Leu Arg Val Gly Leu
                    470   475   480

Gln Arg Tyr Leu Gln Gly Ser Ser Val Gln Leu Arg Ser Leu Arg
                    485   490   495

Leu Thr Tyr Arg Asn Leu Ser Gly Pro Asp Lys Arg Leu Val Thr
                    500   505   510

Leu Arg Leu Pro Ala Ser Leu Ala Glu Tyr Thr Val Thr Gln Leu
                    515   520   525

Arg Pro Asn Ala Thr Tyr Ser Val Cys Val Met Pro Leu Gly Pro
                    530   535   540

Gly Arg Val Pro Glu Gly Glu Glu Ala Cys Gly Glu Ala His Thr
                    545   550   555

Pro Pro Ala Val His Ser Asn His Ala Pro Val Thr Gln Ala Arg
                    560   565   570

Glu Gly Asn Leu Pro Leu Leu Ile Ala Pro Ala Leu Ala Ala Val
                    575   580   585

Leu Leu Ala Ala Leu Ala Ala Val Gly Ala Ala Tyr Cys Val Arg
                    590   595   600

Arg Gly Arg Ala Met Ala Ala Ala Ala Gln Asp Lys Gly Gln Val
                    605   610   615

Gly Pro Gly Ala Gly Pro Leu Glu Leu Glu Gly Val Lys Val Pro
                    620   625   630

Leu Glu Pro Gly Pro Lys Ala Thr Glu Gly Gly Gly Glu Ala Leu
                    635   640   645

Pro Ser Gly Ser Glu Cys Glu Val Pro Leu Met Gly Phe Pro Gly
                    650   655   660

Pro Gly Leu Gln Ser Pro Leu His Ala Lys Pro Tyr Ile
                    665   670

<210> 53
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 53
 tcttcagccg cttgcgcaac ctc 23

<210> 54
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 54
ttgctcacat ccagctcctg cagg 24

<210> 55
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 55
tggatgttgt ccagacaacc agctggagct gtatccgagg c 41

<210> 56
<211> 3462
<212> DNA
<213> Homo sapiens

<400> 56
gaatcatcca cgcacctgca gctctgctga gagagtgcaa gccgtggggg 50

ttttgagctc atcttcatca ttcatatgag gaaataagtg gtaaaatcct 100

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ttatgacagc agagggtgat gctccagagc tgccagaaga aagggaactg 200

atgaccaact gctccaacat gtctctaaga aaggttcccg cagacttgac 250

cccagccaca acgacactgg atttatccta taacctcctt tttcaactcc 300

agagttcaga ttttcattct gtctccaaac tgagagtttt gattctatgc 350

cataacagaa ttcaacagct ggatctcaaa acctttgaat tcaacaagga 400

gttaagatat ttagatttgt ctaataacag actgaagagt gtaacttggt 450

atttactggc aggtctcagg tatttagatc tttcttttaa tgactttgac 500

accatgccta tctgtgagga agctggcaac atgtcacacc tggaaatcct 550

aggtttgagt ggggcaaaaa tacaaaaatc agatttccag aaaattgctc 600

atctgcatct aaatactgtc ttcttaggat tcagaactct tcctcattat 650

gaagaaggta gcctgcccat cttaaacaca acaaaactgc acattgtttt 700

accaatggac acaaatttct gggttctttt gcgtgatgga atcaagactt 750

caaaaatatt agaaatgaca aatatagatg gcaaaagcca atttgtaagt 800

tatgaaatgc aacgaaatct tagtttagaa aatgctaaga catcggttct 850

attgcttaat aaagttgatt tactctggga cgacctttc cttatcttac 900

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tttggtggta aggcttatct tgaccacaat tcatttgact actcaaatac 1000

tgtaatgaga actataaaat tggagcatgt acatttcaga gtgttttaca 1050

ttcaacagga taaaatctat ttgcttttga ccaaaatgga catagaaaac 1100

ctgacaatat caaatgcaca aatgccacac atgctttttcc cgaattatcc 1150

tacgaaattc caatatttaa attttgccaa taatatctta acagacgagt 1200

tgtttaaaag aactatccaa ctgcctcact tgaaaactct cattttgaat 1250

ggcaataaac tggagacact ttctttagta agttgctttg ctaacaacac 1300

acccttggaa cacttggatc tgagtcaaaa tctattacaa cataaaaatg 1350

atgaaaattg ctcatggcca gaaactgtgg tcaatatgaa tctgtcatac 1400

aataaattgt ctgattctgt cttcaggtgc ttgcccaaaa gtattcaaat 1450

acttgaccta aataataacc aaatccaaac tgtacctaaa gagactattc 1500

atctgatggc cttacgagaa ctaaatattg catttaattt tctaactgat 1550

ctccctggat gcagtcattt cagtagactt tcagttctga acattgaaat 1600

gaacttcatt ctcagcccat ctctggattt tgttcagagc tgccaggaag 1650

ttaaaactct aaatgcggga agaaatccat tccggtgtac ctgtgaatta 1700

aaaaatttca ttcagcttga aacatattca gaggtcatga tggttggatg 1750

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taaaagacgt tcatctccac gaattatctt gcaacacagc tctgttgatt 1850

gtcaccattg tggttattat gctagttctg gggttggctg tggccttctg 1900

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cacaaacatg gcacagggtt aggaaaacaa cccaagaaca actcaagaga 2000

aatgtccgat tccacgcatt tatttcatac agtgaacatg attctctgtg 2050

ggtgaagaat gaattgatcc ccaatctaga gaaggaagat ggttctatct 2100

tgatttgcct ttatgaaagc tactttgacc ctggcaaaag cattagtgaa 2150

aatattgtaa gcttcattga gaaaagctat aagtccatct ttgttttgtc 2200

tcccaacttt gtccagaatg agtggtgcca ttatgaattc tactttgccc 2250

accacaatct cttccatgaa aattctgatc atataattct tatcttactg 2300

gaacccattc cattctattg cattcccacc aggtatcata aactgaaagc 2350

tctcctggaa aaaaaagcat acttggaatg gcccaaggat aggcgtaaat 2400

gtgggctttt ctgggcaaac cttcgagctg ctattaatgt taatgtatta 2450

gccaccagag aaatgtatga actgcagaca ttcacagagt taaatgaaga 2500
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57

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gtctcgaggt tctacaatct ctctgatgag aacagattgt ctataaaatc 2550

ccacagtcct tgggaagttg gggaccacat acactgttgg gatgtacatt 2600

gatacaacct ttatgatggc aatttgacaa tatttattaa aataaaaaat 2650

ggttattccc ttcatatcag tttctagaag gatttctaag aatgtatcct 2700

atagaaacac cttcacaagt ttataagggc ttatggaaaa aggtgttcat 2750

cccaggattg tttataatca tgaaaaatgt ggccaggtgc agtggctcac 2800

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cttgggaggc tgaggcagga gaatcgcttg aacccgggag gtggcagttg 3000

cagtgagctg agatcgagcc actgcactcc agcctggtga cagagcgaga 3050

ctccatctca aaaaaaagaa aaaaaaaaa gaaaaaaatg gaaaacatcc 3100

tcatggccac aaaataaggt ctaattcaat aaattatagt acattaatgt 3150

aatataatat tacatgccac taaaaagaat aaggtagctg tatatttcct 3200

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acagggagca tttgatttct atgttgtgta tttctataat gtttgaattg 3400

tttagaatga atctgtattt cttttataag tagaaaaaaa ataaagatag 3450

tttttacagc ct 3462
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<210> 57
<211> 811
<212> PRT
<213> Homo sapiens

<400> 57
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 Met Arg Leu Ile Arg Asn Ile Tyr Ile Phe Cys Ser Ile Val Met
  1               5                  10                  15

 Thr Ala Glu Gly Asp Ala Pro Glu Leu Pro Glu Glu Arg Glu Leu
                 20                  25                  30

 Met Thr Asn Cys Ser Asn Met Ser Leu Arg Lys Val Pro Ala Asp
                 35                  40                  45

 Leu Thr Pro Ala Thr Thr Thr Leu Asp Leu Ser Tyr Asn Leu Leu
                 50                  55                  60

 Phe Gln Leu Gln Ser Ser Asp Phe His Ser Val Ser Lys Leu Arg
                 65                  70                  75

 Val Leu Ile Leu Cys His Asn Arg Ile Gln Gln Leu Asp Leu Lys
                 80                  85                  90
```

58

```
Thr Phe Glu Phe Asn Lys Glu Leu Arg Tyr Leu Asp Leu Ser Asn
              95                      100                    105

Asn Arg Leu Lys Ser Val Thr Trp Tyr Leu Leu Ala Gly Leu Arg
              110                     115                    120

Tyr Leu Asp Leu Ser Phe Asn Asp Phe Asp Thr Met Pro Ile Cys
              125                     130                    135

Glu Glu Ala Gly Asn Met Ser His Leu Glu Ile Leu Gly Leu Ser
              140                     145                    150

Gly Ala Lys Ile Gln Lys Ser Asp Phe Gln Lys Ile Ala His Leu
              155                     160                    165

His Leu Asn Thr Val Phe Leu Gly Phe Arg Thr Leu Pro His Tyr
              170                     175                    180

Glu Glu Gly Ser Leu Pro Ile Leu Asn Thr Thr Lys Leu His Ile
              185                     190                    195

Val Leu Pro Met Asp Thr Asn Phe Trp Val Leu Leu Arg Asp Gly
              200                     205                    210

Ile Lys Thr Ser Lys Ile Leu Glu Met Thr Asn Ile Asp Gly Lys
              215                     220                    225

Ser Gln Phe Val Ser Tyr Glu Met Gln Arg Asn Leu Ser Leu Glu
              230                     235                    240

Asn Ala Lys Thr Ser Val Leu Leu Leu Asn Lys Val Asp Leu Leu
              245                     250                    255

Trp Asp Asp Leu Phe Leu Ile Leu Gln Phe Val Trp His Thr Ser
              260                     265                    270

Val Glu His Phe Gln Ile Arg Asn Val Thr Phe Gly Gly Lys Ala
              275                     280                    285

Tyr Leu Asp His Asn Ser Phe Asp Tyr Ser Asn Thr Val Met Arg
              290                     295                    300

Thr Ile Lys Leu Glu His Val His Phe Arg Val Phe Tyr Ile Gln
              305                     310                    315

Gln Asp Lys Ile Tyr Leu Leu Leu Thr Lys Met Asp Ile Glu Asn
              320                     325                    330

Leu Thr Ile Ser Asn Ala Gln Met Pro His Met Leu Phe Pro Asn
              335                     340                    345

Tyr Pro Thr Lys Phe Gln Tyr Leu Asn Phe Ala Asn Asn Ile Leu
              350                     355                    360

Thr Asp Glu Leu Phe Lys Arg Thr Ile Gln Leu Pro His Leu Lys
              365                     370                    375

Thr Leu Ile Leu Asn Gly Asn Lys Leu Glu Thr Leu Ser Leu Val
              380                     385                    390

Ser Cys Phe Ala Asn Asn Thr Pro Leu Glu His Leu Asp Leu Ser
              395                     400                    405
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Gln Asn Leu Leu Gln His Lys Asn Asp Glu Asn Cys Ser Trp Pro
                410                 415                 420

Glu Thr Val Val Asn Met Asn Leu Ser Tyr Asn Lys Leu Ser Asp
                425                 430                 435

Ser Val Phe Arg Cys Leu Pro Lys Ser Ile Gln Ile Leu Asp Leu
                440                 445                 450

Asn Asn Asn Gln Ile Gln Thr Val Pro Lys Glu Thr Ile His Leu
                455                 460                 465

Met Ala Leu Arg Glu Leu Asn Ile Ala Phe Asn Phe Leu Thr Asp
                470                 475                 480

Leu Pro Gly Cys Ser His Phe Ser Arg Leu Ser Val Leu Asn Ile
                485                 490                 495

Glu Met Asn Phe Ile Leu Ser Pro Ser Leu Asp Phe Val Gln Ser
                500                 505                 510

Cys Gln Glu Val Lys Thr Leu Asn Ala Gly Arg Asn Pro Phe Arg
                515                 520                 525

Cys Thr Cys Glu Leu Lys Asn Phe Ile Gln Leu Glu Thr Tyr Ser
                530                 535                 540

Glu Val Met Met Val Gly Trp Ser Asp Ser Tyr Thr Cys Glu Tyr
                545                 550                 555

Pro Leu Asn Leu Arg Gly Thr Arg Leu Lys Asp Val His Leu His
                560                 565                 570

Glu Leu Ser Cys Asn Thr Ala Leu Leu Ile Val Thr Ile Val Val
                575                 580                 585

Ile Met Leu Val Leu Gly Leu Ala Val Ala Phe Cys Cys Leu His
                590                 595                 600

Phe Asp Leu Pro Trp Tyr Leu Arg Met Leu Gly Gln Cys Thr Gln
                605                 610                 615

Thr Trp His Arg Val Arg Lys Thr Thr Gln Glu Gln Leu Lys Arg
                620                 625                 630

Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser Glu His Asp Ser
                635                 640                 645

Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu Lys Glu Asp
                650                 655                 660

Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly
                665                 670                 675

Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser Tyr
                680                 685                 690

Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp
                695                 700                 705

Cys His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu
                710                 715                 720
```

60

```
Asn Ser Asp His Ile Ile Leu Ile Leu Leu Glu Pro Ile Pro Phe
                725             730             735

Tyr Cys Ile Pro Thr Arg Tyr His Lys Leu Lys Ala Leu Leu Glu
                740             745             750

Lys Lys Ala Tyr Leu Glu Trp Pro Lys Asp Arg Arg Lys Cys Gly
                755             760             765

Leu Phe Trp Ala Asn Leu Arg Ala Ala Ile Asn Val Asn Val Leu
                770             775             780

Ala Thr Arg Glu Met Tyr Glu Leu Gln Thr Phe Thr Glu Leu Asn
                785             790             795

Glu Glu Ser Arg Gly Ser Thr Ile Ser Leu Met Arg Thr Asp Cys
                800             805             810

Leu


<210> 58
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 58
 tcccaccagg tatcataaac tgaa 24

<210> 59
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 59
 ttatagacaa tctgttctca tcagaga 27

<210> 60
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 60
 aaaaagcata cttggaatgg cccaaggata ggtgtaaatg 40

<210> 61
<211> 3772
<212> DNA
<213> Homo sapiens

<400> 61
 gggggctttc ttgggcttgg ctgcttggaa cacctgcctc caaggaccgg 50

 cctcggaggg gtcgccggga aagggaggga agaaggaagg gcggggccgg 100
```

61

```
cccccctgcg cccgccccgc gcctctgcgc gcccctgtcc gccccggccc 150

agcccagccc agccccgcgg gccggtcaca cgcgcagcca gccggccgcc 200

tcccgcgccc aagcgcgccg ctctgctgtg ccctgcgccc ttgccccgcg 250

ccagcttctg cgcccgcagc ccgcccggcg cccccggtga ccgtgaccct 300

gccctgggcg cggggcggag caggcatgtc ccgcccgggg accgctaccc 350

cagcgctggc cctggtgctc ctggcagtga ccctggccgg ggtcggagcc 400

cagggcgcag ccctcgagga ccctgattat tacgggcagg agatctggag 450

ccgggagccc tactacgcgc gcccggagcc cgagctcgag accttctctc 500

cgccgctgcc tgcggggccc ggggaggagt gggagcggcg cccgcaggag 550

cccaggccgc ccaagagggc caccaagccc aagaaagctc ccaagaggga 600

gaagtcggct ccggagccgc ctccaccagg taaacacagc aacaaaaaag 650

ttatgagaac caagagctct gagaaggctg ccaacgatga tcacagtgtc 700

cgtgtggccc gtgaagatgt cagagagagt tgcccacctc ttggtctgga 750

aaccttaaaa atcacagact tccagctcca tgcctccacg gtgaagcgct 800

atggcctggg ggcacatcga gggagactca acatccaggc gggcattaat 850

gaaaatgatt tttatgacgg agcgtggtgc gcgggaagaa atgacctcca 900

gcagtggatt gaagtggatg ctcggcgcct gaccagattc actggtgtca 950

tcactcaagg gaggaactcc ctctggctga gtgactgggt gacatcctat 1000

aaggtcatgg tgagcaatga cagccacacg tgggtcactg ttaagaatgg 1050

atctggagac atgatatttg agggaaacag tgagaaggag atccctgttc 1100

tcaatgagct acccgtcccc atggtggccc gctacatccg cataaaccct 1150

cagtcctggt ttgataatgg gagcatctgc atgagaatgg agatcctggg 1200

ctgcccactg ccagatccta ataattatta tcaccgccgg aacgagatga 1250

ccaccactga tgacctggat tttaagcacc acaattataa ggaaatgcgc 1300

cagttgatga aagttgtgaa tgaaatgtgt cccaatatca ccagaatttta 1350

caacattgga aaaagccacc agggcctgaa gctgtatgct gtggagatct 1400

cagatcaccc tgggggagcat gaagtcggtg agcccgagtt ccactacatc 1450

gcggggggccc acggcaatga ggtgctgggc cgggagctgc tgctgctgct 1500

ggtgcagttc gtgtgtcagg agtacttggc ccggaatgcg cgcatcgtcc 1550

acctggtgga ggagacgcgc attcacgtcc tcccctccct caaccccgat 1600

ggctacgaga aggcctacga aggggggctcg gagctgggag gctggtccct 1650

gggacgctgg acccacgatg gaattgacat caacaacaac tttcctgatt 1700
```

                                    62

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taaacacgct gctctgggag gcagaggatc dacagaatgt ccccaggaaa 1750

gttcccaatc actatattgc aatccctgag tggtttctgt cggaaaatgc 1800

cacggtggct gccgagacca gagcagtcat agcctggatg gaaaaaatcc 1850

cttttgtgct gggcggcaac ctgcagggcg gcgagctggt ggtggcgtat 1900

ccctacgacc tggtgcggtc cccctggaag acgcaggaac acacccccac 1950

ccccgatgac cacgtgttcc gctggctggc ctactcctat gcctccacac 2000

accgcctcat gacagacgcc cggaggaggg tgtgccacac ggaggacttc 2050

cagaaggagg agggcactgt caatggggcc tcctggcaca ccgtcgctgg 2100

aagtctgaac gatttcagct accttcatac aaactgcttc gaactgtcca 2150

tctacgtggg ctgtgataaa tacccacatg agagccagct gcccgaggag 2200

tgggagaata accgggaatc tctgatcgtg ttcatggagc aggttcatcg 2250

tggcattaaa ggcttggtga gagattcaca tggaaaagga atcccaaacg 2300

ccattatctc cgtagaaggc attaaccatg acatccgaac agccaacgat 2350

ggggattact ggcgcctcct gaaccctgga gagtatgtgg tcacagcaaa 2400

ggccgaaggt ttcactgcat ccaccaagaa ctgtatggtt ggctatgaca 2450

tgggggccac aaggtgtgac ttcacactta gcaaaaccaa catggccagg 2500

atccgagaga tcatggagaa gtttgggaag cagcccgtca gcctgccagc 2550

caggcggctg aagctgcggg ggcggaagag acgacagcgt gggtgaccct 2600

cctgggccct tgagactcgt ctgggaccca tgcaaattaa accaacctgg 2650

tagtagctcc atagtggact cactcactgt tgtttcctct gtaattcaag 2700

aagtgcctgg aagagagggt gcattgtgag gcaggtccca aaagggaagg 2750

ctggaggctg aggctgtttt cttttctttg ttcccattta tccaaataac 2800

ttggacagag cagcagagaa aagctgatgg gagtgagaga actcagcaag 2850

ccaacctggg aatcagagag agaaggagaa ggaggggagc ctgtccgttc 2900

agagcctctg gctgcataga aaaggattct ggtgcttccc ctgttttgcgt 2950

ggcagcaagg gttccacgtg catttgcaat ttgcacagct aaaattgcag 3000

catttcccca gctgggctgt cccaaatgtt accatttgag atgctcccag 3050

gcgtcctaag agaatccacc ctctctggcc ctgggacatt gcaagctgct 3100

acaaataaat tctgtgttct tttgacaata gcgtcattgc caagtgcaca 3150

tcagtgagcc tcttgaatct gtttagtctc cttttttcaac aaaggagtgt 3200

gttcagaaaa ggagagagag gctgagatca ttcaggagtt tgttgggcag 3250

caagcatgga gcttcttgca caaattctgg gtccataaac aacccccaaa 3300
```

63

```
gtccctgctg atccagtagc cctggaggtt ccccaggtag ggagagccag 3350

aggtgccagc cttcctgaag ggccagaaaa tttagcctgg atctcctctt 3400

ttacctgcta ggactggaaa gagccagaag tggggtggcc tgaagccctc 3450

tctctgcttg aggtattgcc cctgtgtgga attgagtgct catgggttgg 3500

cctcatatca gcctgggagt tattttgat atgtagaatg ccagatcttc 3550

cagattaggc taaatgtaat gaaaacctct taggattatc tgtggagcat 3600

cagtttggga agaattattg aattatcttg caagaaaaaa gtatgtctca 3650

cttttgtta atgttgctgc ctcattgacc tgggaaaaat gaaaaaaaaa 3700

aataaagcaa atggtaagac ccttaaaaaa aaaaaaaaaa aaaaaaaaaa 3750

aaaaaaaaaa aaaaaaaaaa aa 3772
```

<210> 62
<211> 756
<212> PRT
<213> Homo sapiens

<400> 62
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Met Ser Arg Pro Gly Thr Ala Thr Pro Ala Leu Ala Leu Val Leu
 1               5                  10                      15

Leu Ala Val Thr Leu Ala Gly Val Gly Ala Gln Gly Ala Ala Leu
               20                  25                      30

Glu Asp Pro Asp Tyr Tyr Gly Gln Glu Ile Trp Ser Arg Glu Pro
               35                  40                      45

Tyr Tyr Ala Arg Pro Glu Pro Glu Leu Glu Thr Phe Ser Pro Pro
               50                  55                      60

Leu Pro Ala Gly Pro Gly Glu Glu Trp Glu Arg Arg Pro Gln Glu
               65                  70                      75

Pro Arg Pro Pro Lys Arg Ala Thr Lys Pro Lys Lys Ala Pro Lys
               80                  85                      90

Arg Glu Lys Ser Ala Pro Glu Pro Pro Pro Gly Lys His Ser
               95                 100                     105

Asn Lys Lys Val Met Arg Thr Lys Ser Ser Glu Lys Ala Ala Asn
              110                 115                     120

Asp Asp His Ser Val Arg Val Ala Arg Glu Asp Val Arg Glu Ser
              125                 130                     135

Cys Pro Pro Leu Gly Leu Glu Thr Leu Lys Ile Thr Asp Phe Gln
              140                 145                     150

Leu His Ala Ser Thr Val Lys Arg Tyr Gly Leu Gly Ala His Arg
              155                 160                     165

Gly Arg Leu Asn Ile Gln Ala Gly Ile Asn Glu Asn Asp Phe Tyr
              170                 175                     180

Asp Gly Ala Trp Cys Ala Gly Arg Asn Asp Leu Gln Gln Trp Ile
```

	185				190				195

Glu Val Asp Ala Arg Arg Leu Thr Arg Phe Thr Gly Val Ile Thr
             200   205   210

Gln Gly Arg Asn Ser Leu Trp Leu Ser Asp Trp Val Thr Ser Tyr
             215   220   225

Lys Val Met Val Ser Asn Asp Ser His Thr Trp Val Thr Val Lys
             230   235   240

Asn Gly Ser Gly Asp Met Ile Phe Glu Gly Asn Ser Glu Lys Glu
             245   250   255

Ile Pro Val Leu Asn Glu Leu Pro Val Pro Met Val Ala Arg Tyr
             260   265   270

Ile Arg Ile Asn Pro Gln Ser Trp Phe Asp Asn Gly Ser Ile Cys
             275   280   285

Met Arg Met Glu Ile Leu Gly Cys Pro Leu Pro Asp Pro Asn Asn
             290   295   300

Tyr Tyr His Arg Arg Asn Glu Met Thr Thr Thr Asp Asp Leu Asp
             305   310   315

Phe Lys His His Asn Tyr Lys Glu Met Arg Gln Leu Met Lys Val
             320   325   330

Val Asn Glu Met Cys Pro Asn Ile Thr Arg Ile Tyr Asn Ile Gly
             335   340   345

Lys Ser His Gln Gly Leu Lys Leu Tyr Ala Val Glu Ile Ser Asp
             350   355   360

His Pro Gly Glu His Glu Val Gly Glu Pro Glu Phe His Tyr Ile
             365   370   375

Ala Gly Ala His Gly Asn Glu Val Leu Gly Arg Glu Leu Leu Leu
             380   385   390

Leu Leu Val Gln Phe Val Cys Gln Glu Tyr Leu Ala Arg Asn Ala
             395   400   405

Arg Ile Val His Leu Val Glu Glu Thr Arg Ile His Val Leu Pro
             410   415   420

Ser Leu Asn Pro Asp Gly Tyr Glu Lys Ala Tyr Glu Gly Gly Ser
             425   430   435

Glu Leu Gly Gly Trp Ser Leu Gly Arg Trp Thr His Asp Gly Ile
             440   445   450

Asp Ile Asn Asn Asn Phe Pro Asp Leu Asn Thr Leu Leu Trp Glu
             455   460   465

Ala Glu Asp Arg Gln Asn Val Pro Arg Lys Val Pro Asn His Tyr
             470   475   480

Ile Ala Ile Pro Glu Trp Phe Leu Ser Glu Asn Ala Thr Val Ala
             485   490   495

Ala Glu Thr Arg Ala Val Ile Ala Trp Met Glu Lys Ile Pro Phe

```
                500                   505                   510
Val Leu Gly Gly Asn Leu Gln Gly Gly Glu Leu Val Val Ala Tyr
                515                   520                   525

Pro Tyr Asp Leu Val Arg Ser Pro Trp Lys Thr Gln Glu His Thr
                530                   535                   540

Pro Thr Pro Asp Asp His Val Phe Arg Trp Leu Ala Tyr Ser Tyr
                545                   550                   555

Ala Ser Thr His Arg Leu Met Thr Asp Ala Arg Arg Arg Val Cys
                560                   565                   570

His Thr Glu Asp Phe Gln Lys Glu Glu Gly Thr Val Asn Gly Ala
                575                   580                   585

Ser Trp His Thr Val Ala Gly Ser Leu Asn Asp Phe Ser Tyr Leu
                590                   595                   600

His Thr Asn Cys Phe Glu Leu Ser Ile Tyr Val Gly Cys Asp Lys
                605                   610                   615

Tyr Pro His Glu Ser Gln Leu Pro Glu Glu Trp Glu Asn Asn Arg
                620                   625                   630

Glu Ser Leu Ile Val Phe Met Glu Gln Val His Arg Gly Ile Lys
                635                   640                   645

Gly Leu Val Arg Asp Ser His Gly Lys Gly Ile Pro Asn Ala Ile
                650                   655                   660

Ile Ser Val Glu Gly Ile Asn His Asp Ile Arg Thr Ala Asn Asp
                665                   670                   675

Gly Asp Tyr Trp Arg Leu Leu Asn Pro Gly Glu Tyr Val Val Thr
                680                   685                   690

Ala Lys Ala Glu Gly Phe Thr Ala Ser Thr Lys Asn Cys Met Val
                695                   700                   705

Gly Tyr Asp Met Gly Ala Thr Arg Cys Asp Phe Thr Leu Ser Lys
                710                   715                   720

Thr Asn Met Ala Arg Ile Arg Glu Ile Met Glu Lys Phe Gly Lys
                725                   730                   735

Gln Pro Val Ser Leu Pro Ala Arg Arg Leu Lys Leu Arg Gly Arg
                740                   745                   750

Lys Arg Arg Gln Arg Gly
                755
```

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 63
 gttctcaatg agctacccgt cccc 24

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<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 64
 cgcgatgtag tggaactcgg gctc 24

<210> 65
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 65
 atccgcataa accctcagtc ctggtttgat aatgggagca tctgcatgag 50

<210> 66
<211> 2854
<212> DNA
<213> Homo sapiens

<400> 66
 ctaagaggac aagatgaggc ccggcctctc atttctccta gcccttctgt 50

 tcttccttgg ccaagctgca ggggatttgg gggatgtggg acctccaatt 100

 cccagccccg gcttcagctc tttcccaggt gttgactcca gctccagctt 150

 cagctccagc tccaggtcgg gctccagctc cagccgcagc ttaggcagcg 200

 gaggttctgt gtcccagttg ttttccaatt tcaccggctc cgtggatgac 250

 cgtgggacct gccagtgctc tgtttccctg ccagacacca cctttcccgt 300

 ggacagagtg gaacgcttgg aattcacagc tcatgttctt tctcagaagt 350

 ttgagaaaga actttctaaa gtgagggaat atgtccaatt aattagtgtg 400

 tatgaaaaga aactgttaaa cctaactgtc cgaattgaca tcatggagaa 450

 ggataccatt tcttacactg aactggactt cgagctgatc aaggtagaag 500

 tgaaggagat ggaaaaactg gtcatacagc tgaaggagag ttttggtgga 550

 agctcagaaa ttgttgacca gctggaggtg gagataagaa atatgactct 600

 cttggtagag aagcttgaga cactagacaa aaacaatgtc cttgccattc 650

 gccgagaaat cgtggctctg aagaccaagc tgaaagagtg tgaggcctct 700

 aaagatcaaa acacccctgt cgtccaccct cctcccactc cagggagctg 750

 tggtcatggt ggtgtggtga acatcagcaa accgtctgtg gttcagctca 800

 actggagagg gtttttctat ctatatggtg cttggggtag ggattactct 850

 ccccagcatc caaacaaagg actgtattgg gtggcgccat tgaatacaga 900
```

67

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tgggagactg ttggagtatt atagactgta caacacactg gatgatttgc 950

tattgtatat aaatgctcga gagttgcgga tcacctatgg ccaaggtagt 1000

ggtacagcag tttacaacaa caacatgtac gtcaacatgt acaacaccgg 1050

gaatattgcc agagttaacc tgaccaccaa cacgattgct gtgactcaaa 1100

ctctccctaa tgctgcctat aataaccgct tttcatatgc taatgttgct 1150

tggcaagata ttgactttgc tgtggatgag aatggattgt gggttattta 1200

ttcaactgaa gccagcactg gtaacatggt gattagtaaa ctcaatgaca 1250

ccacacttca ggtgctaaac acttggtata ccaagcagta taaaccatct 1300

gcttctaacg ccttcatggt atgtggggtt ctgtatgcca cccgtactat 1350

gaacaccaga acagaagaga ttttttacta ttatgacaca aacacaggga 1400

aagagggcaa actagacatt gtaatgcata agatgcagga aaaagtgcag 1450

agcattaact ataacccttt tgaccagaaa ctttatgtct ataacgatgg 1500

ttaccttctg aattatgatc tttctgtctt gcagaagccc cagtaagctg 1550

tttaggagtt agggtgaaag agaaaatgtt tgttgaaaaa atagtcttct 1600

ccacttactt agatatctgc aggggtgtct aaaagtgtgt tcattttgca 1650

gcaatgttta ggtgcatagt tctaccacac tagagatcta ggacatttgt 1700

cttgatttgg tgagttctct tgggaatcat ctgcctcttc aggcgcattt 1750

tgcaataaag tctgtctagg gtgggattgt cagaggtcta ggggcactgt 1800

gggcctagtg aagcctactg tgaggaggct tcactagaag ccttaaatta 1850

ggaattaagg aacttaaaac tcagtatggc gtctagggat tctttgtaca 1900

ggaaatattg cccaatgact agtcctcatc catgtagcac cactaattct 1950

tccatgcctg gaagaaacct ggggacttag ttaggtagat taatatctgg 2000

agctcctcga gggaccaaat ctccaacttt tttttcccct cactagcacc 2050

tggaatgatg ctttgtatgt ggcagataag taaatttggc atgcttatat 2100

attctacatc tgtaaagtgc tgagttttat ggagagaggc ctttttatgc 2150

attaaattgt acatggcaaa taaatcccag aaggatctgt agatgaggca 2200

cctgcttttt cttttctctc attgtccacc ttactaaaag tcagtagaat 2250

cttctacctc ataacttcct tccaaaggca gctcagaaga ttagaaccag 2300

acttactaac caattccacc ccccaccaac cccttctac tgcctacttt 2350

aaaaaaatta atagttttct atggaactga tctaagatta gaaaaattaa 2400

ttttctttaa tttcattatg gactttatt tacatgactc taagactata 2450

agaaaatctg atggcagtga caaagtgcta gcatttattg ttatctaata 2500
```

68

```
aagaccttgg agcatatgtg caacttatga gtgtatcagt tgttgcatgt 2550

aatttttgcc tttgtttaag cctggaactt gtaagaaaat gaaaatttaa 2600

tttttttttc taggacgagc tatagaaaag ctattgagag tatctagtta 2650

atcagtgcag tagttggaaa ccttgctggt gtatgtgatg tgcttctgtg 2700

cttttgaatg acttatcat ctagtctttg tctattttc ctttgatgtt 2750

caagtcctag tctataggat tggcagttta aatgctttac tcccccttt 2800

aaaataaatg attaaaatgt gctttgaaaa aaaaaaaaa aaaaaaaaa 2850

aaaa 2854
```

<210> 67
<211> 510
<212> PRT
<213> Homo sapiens

<400> 67

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Met Arg Pro Gly Leu Ser Phe Leu Leu Ala Leu Leu Phe Phe Leu
 1               5                  10                      15

Gly Gln Ala Ala Gly Asp Leu Gly Asp Val Gly Pro Pro Ile Pro
                20                  25                      30

Ser Pro Gly Phe Ser Ser Phe Pro Gly Val Asp Ser Ser Ser Ser
                35                  40                      45

Phe Ser Ser Ser Ser Arg Ser Gly Ser Ser Ser Ser Arg Ser Leu
                50                  55                      60

Gly Ser Gly Gly Ser Val Ser Gln Leu Phe Ser Asn Phe Thr Gly
                65                  70                      75

Ser Val Asp Asp Arg Gly Thr Cys Gln Cys Ser Val Ser Leu Pro
                80                  85                      90

Asp Thr Thr Phe Pro Val Asp Arg Val Glu Arg Leu Glu Phe Thr
                95                  100                     105

Ala His Val Leu Ser Gln Lys Phe Glu Lys Glu Leu Ser Lys Val
                110                 115                     120

Arg Glu Tyr Val Gln Leu Ile Ser Val Tyr Glu Lys Lys Leu Leu
                125                 130                     135

Asn Leu Thr Val Arg Ile Asp Ile Met Glu Lys Asp Thr Ile Ser
                140                 145                     150

Tyr Thr Glu Leu Asp Phe Glu Leu Ile Lys Val Glu Val Lys Glu
                155                 160                     165

Met Glu Lys Leu Val Ile Gln Leu Lys Glu Ser Phe Gly Gly Ser
                170                 175                     180

Ser Glu Ile Val Asp Gln Leu Glu Val Glu Ile Arg Asn Met Thr
                185                 190                     195

Leu Leu Val Glu Lys Leu Glu Thr Leu Asp Lys Asn Asn Val Leu
                200                 205                     210
```

                                69

```
Ala Ile Arg Arg Glu Ile Val Ala Leu Lys Thr Lys Leu Lys Glu
              215             Ile Val Ala Leu 220                 225

Cys Glu Ala Ser Lys Asp Gln Asn Thr Pro Val Val His Pro Pro
              230                 235                 240

Pro Thr Pro Gly Ser Cys Gly His Gly Gly Val Val Asn Ile Ser
              245                 250                 255

Lys Pro Ser Val Val Gln Leu Asn Trp Arg Gly Phe Ser Tyr Leu
              260                 265                 270

Tyr Gly Ala Trp Gly Arg Asp Tyr Ser Pro Gln His Pro Asn Lys
              275                 280                 285

Gly Leu Tyr Trp Val Ala Pro Leu Asn Thr Asp Gly Arg Leu Leu
              290                 295                 300

Glu Tyr Tyr Arg Leu Tyr Asn Thr Leu Asp Asp Leu Leu Leu Tyr
              305                 310                 315

Ile Asn Ala Arg Glu Leu Arg Ile Thr Tyr Gly Gln Gly Ser Gly
              320                 325                 330

Thr Ala Val Tyr Asn Asn Asn Met Tyr Val Asn Met Tyr Asn Thr
              335                 340                 345

Gly Asn Ile Ala Arg Val Asn Leu Thr Thr Asn Thr Ile Ala Val
              350                 355                 360

Thr Gln Thr Leu Pro Asn Ala Ala Tyr Asn Asn Arg Phe Ser Tyr
              365                 370                 375

Ala Asn Val Ala Trp Gln Asp Ile Asp Phe Ala Val Asp Glu Asn
              380                 385                 390

Gly Leu Trp Val Ile Tyr Ser Thr Glu Ala Ser Thr Gly Asn Met
              395                 400                 405

Val Ile Ser Lys Leu Asn Asp Thr Thr Leu Gln Val Leu Asn Thr
              410                 415                 420

Trp Tyr Thr Lys Gln Tyr Lys Pro Ser Ala Ser Asn Ala Phe Met
              425                 430                 435

Val Cys Gly Val Leu Tyr Ala Thr Arg Thr Met Asn Thr Arg Thr
              440                 445                 450

Glu Glu Ile Phe Tyr Tyr Tyr Asp Thr Asn Thr Gly Lys Glu Gly
              455                 460                 465

Lys Leu Asp Ile Val Met His Lys Met Gln Glu Lys Val Gln Ser
              470                 475                 480

Ile Asn Tyr Asn Pro Phe Asp Gln Lys Leu Tyr Val Tyr Asn Asp
              485                 490                 495

Gly Tyr Leu Leu Asn Tyr Asp Leu Ser Val Leu Gln Lys Pro Gln
              500                 505                 510
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<210> 68
<211> 410
<212> DNA

<213> Homo sapiens

<220>
<221> unsure
<222> 206, 217, 387
<223> unknown base

<400> 68
gctctgaaga ccaagctgaa agagtgtgag gcctctaaag atcaaacacc 50

cctgtcgtcc accctcctcc cactccaggg agctgtggtc atggtggtgt 100

ggtgaacatc agcaaaccgt ctgtggttca gctcaactgg agagggtttt 150

cttatctata tggtgcttgg ggtagggatt actctcccca gcatccaaac 200

aaaggnatgt attgggnggc gccattgaat acagatggga gactgttgga 250

gtattataga ctgtacaacc cactggatga tttgctattg tatataaatg 300

ctcgagagtt gcggatcacc tatggccaag gtagtggtac agcagtttac 350

aacaacaaca tgtacgtcaa catgtacaac accgggnata ttgccagagt 400

taacctgacc 410

<210> 69
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 69
agctgtggtc atggtggtgt ggtg 24

<210> 70
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 70
ctaccttggc cataggtgat ccgc 24

<210> 71
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 71
catcagcaaa ccgtctgtgg ttcagctcaa ctggagaggg tt 42

<210> 72
<211> 3127
<212> DNA
<213> Homo sapiens

71

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tctcgcagat agtaaataat ctcggaaagg cgagaaagaa gctgtctcca 50

tcttgtctgt atccgctgct cttgtgacgt tgtggagatg gggagcgtcc 100

tggggctgtg ctccatggcg agctggatac catgtttgtg tggaagtgcc 150

ccgtgtttgc tatgccgatg ctgtcctagt ggaaacaact ccactgtaac 200

tagattgatc tatgcacttt tcttgcttgt tggagtatgt gtagcttgtg 250

taatgttgat accaggaatg gaagaacaac tgaataagat tcctggattt 300

tgtgagaatg agaaaggtgt tgtcccttgt aacattttgg ttggctataa 350

agctgtatat cgtttgtgct ttggttttggc tatgttctat cttcttctct 400

ctttactaat gatcaaagtg aagagtagca gtgatcctag agctgcagtg 450

cacaatggat tttggttctt taaatttgct gcagcaattg caattattat 500

tggggcattc ttcattccag aaggaacttt tacaactgtg tggtttttatg 550

taggcatggc aggtgccttt tgtttcatcc tcatacaact agtcttactt 600

attgattttg cacattcatg gaatgaatcg tgggttgaaa aaatggaaga 650

agggaactcg agatgttggt atgcagcctt gttatcagct acagctctga 700

attatctgct gtctttagtt gctatcgtcc tgttctttgt ctactacact 750

catccagcca gttgttcaga aaacaaggcg ttcatcagtg tcaacatgct 800

cctctgcgtt ggtgcttctg taatgtctat actgccaaaa atccaagaat 850

cacaaccaag atctggtttg ttacagtctt cagtaattac agtctacaca 900

atgtatttga catggtcagc tatgaccaat gaaccagaaa caaattgcaa 950

cccaagtcta ctaagcataa ttggctacaa tacaacaagc actgtcccaa 1000

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attctctttt tgttgtgtgt attttattcc agcatccgta cttcaaacaa 1100

tagtcaggtt aataaactga ctctaacaag tgatgaatct acattaatag 1150

aagatggtgg agctagaagt gatggatcac tggaggatgg ggacgatgtt 1200

caccgagctg tagataatga aagggatggt gtcacttaca gttattcctt 1250

ctttcacttc atgctttttcc tggcttcact ttatatcatg atgacccctta 1300

ccaactggtc caggtatgaa ccctctcgtg agatgaaaag tcagtggaca 1350

gctgtctggg tgaaaatctc ttccagttgg attggcatcg tgctgtatgt 1400

ttggacactc gtggcaccac ttgttcttac aaatcgtgat tttgactgag 1450

tgagacttct agcatgaaag tcccactttg attattgctt atttgaaaac 1500

agtattccca actttttgtaa agttgtgtat gttttttgctt cccatgtaac 1550
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72

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ttctccagtg ttctggcatg aattagattt tactgcttgt cattttgtta 1600

ttttcttacc aagtgcattg atatgtgaag tagaatgaat tgcagaggaa 1650

agttttatga atatggtgat gagttagtaa aagtggccat tattgggctt 1700

attctctgct ctatagttgt gaaatgaaga gtaaaaacaa atttgtttga 1750

ctattttaaa attatattag accttaagct gttttagcaa gcattaaagc 1800

aaatgtatgg ctgccttttg aaatatttga tgtgttgcct ggcaggatac 1850

tgcaaagaac atggtttatt ttaaaattta taaacaagtc acttaaatgc 1900

cagttgtctg aaaaatctta taaggtttta cccttgatac ggaatttaca 1950

caggtaggga gtgtttagtg gacaatagtg taggttatgg atggaggtgt 2000

cggtactaaa ttgaataacg agtaaataat cttacttggg tagagatggc 2050

ctttgccaac aaagtgaact gttttggttg ttttaaactc atgaagtatg 2100

ggttcagtgg aaatgtttgg aactctgaag gatttagaca aggttttgaa 2150

aaggataatc atgggttaga aggaagtgtt ttgaaagtca ctttgaaagt 2200

tagttttggg cccagcacgg tagctcaccc ttggtaatcc cagcactttg 2250

ggagcttaag tgggtagatt acttgagccc aggaattcag accagcttgg 2300

cacatggtga acctgttcta taaaaataat ctggctttga gcatatgcct 2350

gtggtccagc actgagaggc tagtgaagat tgctgagccc agagccaaag 2400

gttgcagtga gcaagtcacg tcactgcact ctagctggca cagagtaagc 2450

caaaaaaata tatatatatt gaaatcaagg aggcaaaatt ttgacaggga 2500

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catgacccat aaacaggtca gaagaatgat ggaatgtttt agaataaact 2800

cctgcttata gtatactaca cagttcaaaa gatgtttaaa atgcttttgt 2850

atttactgcc atgtaattga aatatataga ttattgtaac ctttcaacct 2900

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taatgaagct tttaaaatct acaatttctt ctttaaaaat atttattaat 3000

gtgaatggaa tataacaatt cagcttaatt ccccaacctt attctgtgtg 3050

tagacattgt attccacaat tttgaatggc tgtgttttac ctctaaataa 3100

atgaattcag agaaaaaaaa aaaaaaa 3127
```

73

<210> 73
<211> 453
<212> PRT
<213> Homo sapiens

<400> 73
```
Met Gly Ser Val Leu Gly Leu Cys Ser Met Ala Ser Trp Ile Pro
 1               5                  10                  15

Cys Leu Cys Gly Ser Ala Pro Cys Leu Leu Cys Arg Cys Cys Pro
                20              25                  30

Ser Gly Asn Asn Ser Thr Val Thr Arg Leu Ile Tyr Ala Leu Phe
                35              40                  45

Leu Leu Val Gly Val Cys Val Ala Cys Val Met Leu Ile Pro Gly
                50              55 .                60

Met Glu Glu Gln Leu Asn Lys Ile Pro Gly Phe Cys Glu Asn Glu
                65              70                  75

Lys Gly Val Val Pro Cys Asn Ile Leu Val Gly Tyr Lys Ala Val
                80              85                  90

Tyr Arg Leu Cys Phe Gly Leu Ala Met Phe Tyr Leu Leu Leu Ser
                95              100                 105

Leu Leu Met Ile Lys Val Lys Ser Ser Ser Asp Pro Arg Ala Ala
                110             115                 120

Val His Asn Gly Phe Trp Phe Phe Lys Phe Ala Ala Ala Ile Ala
                125             130                 135

Ile Ile Ile Gly Ala Phe Phe Ile Pro Glu Gly Thr Phe Thr Thr
                140             145                 150

Val Trp Phe Tyr Val Gly Met Ala Gly Ala Phe Cys Phe Ile Leu
                155             160                 165

Ile Gln Leu Val Leu Leu Ile Asp Phe Ala His Ser Trp Asn Glu
                170             175                 180

Ser Trp Val Glu Lys Met Glu Glu Gly Asn Ser Arg Cys Trp Tyr
                185             190                 195

Ala Ala Leu Leu Ser Ala Thr Ala Leu Asn Tyr Leu Leu Ser Leu
                200             205                 210

Val Ala Ile Val Leu Phe Phe Val Tyr Tyr Thr His Pro Ala Ser
                215             220                 225

Cys Ser Glu Asn Lys Ala Phe Ile Ser Val Asn Met Leu Leu Cys
                230             235                 240

Val Gly Ala Ser Val Met Ser Ile Leu Pro Lys Ile Gln Glu Ser
                245             250                 255

Gln Pro Arg Ser Gly Leu Leu Gln Ser Ser Val Ile Thr Val Tyr
                260             265                 270

Thr Met Tyr Leu Thr Trp Ser Ala Met Thr Asn Glu Pro Glu Thr
                275             280                 285
```

74

```
Asn Cys Asn Pro Ser Leu Leu Ser Ile Ile Gly Tyr Asn Thr Thr
             290                 295                     300

Ser Thr Val Pro Lys Glu Gly Gln Ser Val Gln Trp Trp His Ala
             305                 310                     315

Gln Gly Ile Ile Gly Leu Ile Leu Phe Leu Leu Cys Val Phe Tyr
             320                 325                     330

Ser Ser Ile Arg Thr Ser Asn Asn Ser Gln Val Asn Lys Leu Thr
             335                 340                     345

Leu Thr Ser Asp Glu Ser Thr Leu Ile Glu Asp Gly Gly Ala Arg
             350                 355                     360

Ser Asp Gly Ser Leu Glu Asp Gly Asp Asp Val His Arg Ala Val
             365                 370                     375

Asp Asn Glu Arg Asp Gly Val Thr Tyr Ser Tyr Ser Phe Phe His
             380                 385                     390

Phe Met Leu Phe Leu Ala Ser Leu Tyr Ile Met Met Thr Leu Thr
             395                 400                     405

Asn Trp Ser Arg Tyr Glu Pro Ser Arg Glu Met Lys Ser Gln Trp
             410                 415                     420

Thr Ala Val Trp Val Lys Ile Ser Ser Ser Trp Ile Gly Ile Val
             425                 430                     435

Leu Tyr Val Trp Thr Leu Val Ala Pro Leu Val Leu Thr Asn Arg
             440                 445                     450

Asp Phe Asp

<210> 74
<211> 480
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 48, 163
<223> unknown base

<400> 74
 gcgagaaaga agctgtctcc atcttgtctg tatcccgctg cttcttgnga 50

 cgttgtggag atggggagcg tccctggggc tgtgctccat ggcgagctgg 100

 ataccatgtt tgtgtggaag tgccccgtgt ttgctatgcc gatgctgtcc 150

 tagtggaaac aantccactg taactagatt gatctatgca cttttcttgc 200

 ttgttggagt atgtgtagct tgtgtaatgt tgataccagg aatggaagaa 250

 caactgaata agattcctgg attttgtgag aatgagaaag gtgttgtccc 300

 ttgtaacatt ttggttggct ataaagctgt atatcgtttg tgctttggtt 350

 tggctatgtt ctatcttctt ctctctttac taatgatcaa agtgaagagt 400
```

75

```
agcagtgatc ctagagctgc agtgcacaat ggattttggt tctttaaatt 450

tgctgcagca attgcaatta ttattggggc 480
```

<210> 75
<211> 438
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 32, 65, 92, 121, 142, 154, 170, 293, 315, 323
<223> unknown base

<400> 75
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gttattgtga actttgtgga gatgggaggt cntgggggctg tgttccatgg 50

cgagctggat accangtttg tgtggaagtg ccccgtgttt gntatgccga 100

tgctgtccta gtggaaacaa ntccactgta attagattga tntatgcact 150

tttnttgctt gttggagtan gtgtagcttg tgtaatgttg ataccaggaa 200

tggaagaaca actgaataag attcctggat tttgtgagaa tgagaaaggt 250

gttgtccctt gtaacatttt ggttggctat aaagctgtat atngtttgtg 300

ctttggtttg gctangttct atnttcttct ctctttacta atgatcaaag 350

tgaagagtag cagtgatcct agagctgcag tgcacaatgg attttggttt 400

tttaaatttg ctgcagcaat tgcaattatt attggggc 438
```

<210> 76
<211> 473
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 48
<223> unknown base

<400> 76
```
aagaagctgt ctccatcttg tctgtatccg ctgctcttgt gaacgttntg 50

gagatgggga gcgtccttgg ggttgtgctc catggcgagc tggataccat 100

gtttgtgtgg aagtgccccg tgtttgctat gccgatgctg tcctagtgga 150

aacaactcca ctgtaactag attgatctat gcacttttct tgcttgttgg 200

agtatgtgta gcttgtgtaa tgttgatacc aggaatggaa gaacaactga 250

ataagattcc tggattttgt gagaatgaga aaggtgttgt cccttgtaac 300

attttggttg gctataaagc tgtatatcgt ttgtgctttg gtttggctat 350

gttctatctt cttctctctt tactaatgat caaagtgaag agtagcagtg 400

atcctagagc tgcagtgcac aatggatttt ggttctttaa atttgctgca 450

gcaattgcaa ttattattgg ggc 473
```
76

<210> 77
<211> 666
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 21, 111
<223> unknown base

<400> 77
gctgtcctta gtggaaacaa ntccaacttg taacttggat tgatctatgc 50

acttttcct tgcttgttgg agtatgtgta gctttgtgta atgttgttcc 100

caggattgga ngaacaactg aataagattc ctggattttt gtgagaatga 150

gaaaggtgtt gtccccttgt aacattttg gttggctata aagctgtata 200

tcgtttgtgc tttggtttgg ctatgttcta tcttcttctc tctttactaa 250

tgatcaaagt gaagagtagc agtgatccta gagctgcagt gcacaatgga 300

ttttggttct ttaaatttgc tgcagcaatt gcaattatta ttggggcatt 350

cttcattcca gaaggaactt ttacaactgt gtggttttat gtaggcatgg 400

caggtgcctt ttgtttcatc ctcatacaac tagtcttact tattgatttt 450

gcacattcat ggaatgaatc gtgggttgaa aaaatggaag aagggaactc 500

gagatgttgg tatgcagcct tgttatcagc tacagctctg aattatctgc 550

tgtctttagt tgctatcgtc ctgttctttg tctactacac tcatccagcc 600

agttgttcag aaaacaaggc gttcatcagt gtcaacatgc tcctctgcgt 650

tggtgcttct gtaatg 666

<210> 78
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 78
atgtttgtgt ggaagtgccc cg 22

<210> 79
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 79
gtcaacatgc tcctctgc 18

<210> 80
<211> 26

77

```
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 80
 aatccattgt gcactgcagc tctagg 26

<210> 81
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 81
 gagcatgcca ccactggact gac 23

<210> 82
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 82
 gccgatgctg tcctagtgga aacaactcca ctgtaactag attgatctat 50

 gcac 54

<210> 83
<211> 3906
<212> DNA
<213> Homo sapiens

<400> 83
 ctcgggcgcg cacaggcagc tcggtttgcc ctgcgattga gctgcgggtc 50

 gcggccggcg ccggcctctc caatggcaaa tgtgtgtggc tggaggcgag 100

 cgcgaggctt tcggcaaagg cagtcgagtg tttgcagacc ggggcgagtc 150

 ctgtgaaagc agataaaaga aaacatttat taacgtgtca ttacgagggg 200

 agcgcccggc cggggctgtc gcactccccg cggaacattt ggctccctcc 250

 agctccgaga gaggagaaga agaaagcgga aaagaggcag attcacgtcg 300

 tttccagcca agtggacctg atcgatggcc ctcctgaatt tatcacgata 350

 tttgatttat tagcgatgcc ccctggtttg tgtgttacgc acacacacgt 400

 gcacacaagg ctctggctcg cttccctccc tcgtttccag ctcctgggcg 450

 aatcccacat ctgtttcaac tctccgccga gggcgagcag gagcgagagt 500

 gtgtcgaatc tgcgagtgaa gagggacgag ggaaaagaaa caaagccaca 550

 gacgcaactt gagactcccg catcccaaaa gaagcaccag atcagcaaaa 600
```

78

```
aaagaagatg ggccccccga gcctcgtgct gtgcttgctg tccgcaactg 650

tgttctccct gctgggtgga agctcggcct tcctgtcgca ccaccgcctg 700

aaaggcaggt ttcagaggga ccgcaggaac atccgcccca acatcatcct 750

ggtgctgacg gacgaccagg atgtggagct gggttccatg caggtgatga 800

acaagacccg gcgcatcatg gagcagggcg gggcgcactt catcaacgcc 850

ttcgtgacca cacccatgtg ctgcccctca cgctcctcca tcctcactgg 900

caagtacgtc cacaaccaca acacctacac caacaatgag aactgctcct 950

cgccctcctg gcaggcacag cacgagagcc gcacctttgc cgtgtacctc 1000

aatagcactg gctaccggac agctttcttc gggaagtatc ttaatgaata 1050

caacggctcc tacgtgccac ccggctggaa ggagtgggtc ggactcctta 1100

aaaactcccg cttttataac tacacgctgt gtcggaacgg ggtgaaagag 1150

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gagctacaac tacgcgccca acccggacaa acactggatc atgcgctaca 1400

cggggcccat gaagcccatc cacatggaat tcaccaacat gctccagcgg 1450

aagcgcttgc agaccctcat gtcggtggac gactccatgg agacgattta 1500

caacatgctg gttgagacgg gcgagctgga caacacgtac atcgtataca 1550

ccgccgacca cggttaccac atcggccagt ttggcctggt gaaagggaaa 1600

tccatgccat atgagtttga catcagggtc ccgttctacg tgagggccc 1650

caacgtggaa gccggctgtc tgaatcccca catcgtcctc aacattgacc 1700

tggcccccac catcctggac attgcaggcc tggacatacc tgcggatatg 1750

gacgggaaat ccatcctcaa gctgctggac acggagcggc cggtgaatcg 1800

gtttcacttg aaaaagaaga tgagggtctg gcgggactcc ttcttggtgg 1850

agagaggcaa gctgctacac aagagagaca atgacaaggt ggacgcccag 1900

gaggagaact ttctgcccaa gtaccagcgt gtgaaggacc tgtgtcagcg 1950

tgctgagtac cagacggcgt gtgagcagct gggacagaag tggcagtgtg 2000

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cggctgggcg gcagcagagc cctctccaac ctcgtgccca agtactacgg 2100

gcagggcagc gaggcctgca cctgtgacag cggggactac aagctcagcc 2150

tggccggacg ccggaaaaaa ctcttcaaga agaagtacaa ggccagctat 2200
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79

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gtccgcagtc gctccatccg ctcagtggcc atcgaggtgg acggcagggt 2250

gtaccacgta ggcctgggtg atgccgccca gccccgaaac ctcaccaagc 2300

ggcactggcc aggggcccct gaggaccaag atgacaagga tggtggggac 2350

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agtgacacat cggtgctaca tcctagagaa cgacacagtc cagtgtgacc 2450

tggacctgta caagtccctg caggcctgga aagaccacaa gctgcacatc 2500

gaccacgaga ttgaaaccct gcagaacaaa attaagaacc tgagggaagt 2550

ccgaggtcac ctgaagaaaa agcggccaga agaatgtgac tgtcacaaaa 2600

tcagctacca cacccagcac aaaggccgcc tcaagcacag aggctccagt 2650

ctgcatcctt tcaggaaggg cctgcaagag aaggacaagg tgtggctgtt 2700

gcgggagcag aagcgcaaga agaaactccg caagctgctc aagcgcctgc 2750

agaacaacga cacgtgcagc atgccaggcc tcacgtgctt cacccacgac 2800

aaccagcact ggcagacggc gcctttctgg acactggggc ctttctgtgc 2850

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agaaatgaag agacettctt ccaaatcact gggacaactg tgggaaggct 3200

gggaaggtta agaaacaaca gaggtggacc tccaaaaaca tagaggcatc 3250

acctgactgc acaggcaatg aaaaaccatg tgggtgattt ccagcagacc 3300

tgtgctattg gccaggaggc ctgagaaagc aagcacgcac tctcagtcaa 3350

catgacagat tctggaggat aaccagcagg agcagagata acttcaggaa 3400

gtccattttt gcccctgctt ttgctttgga ttatacctca ccagctgcac 3450

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ctcacaaagg aaaacggaga gagcgagcga gagagatttc cttggaaatt 3550

tctcccaagg gcgaaagtca ttggaatttt taaatcatag gggaaaagca 3600

gtcctgttct aaatcctctt attcttttgg tttgtcacaa agaaggaact 3650

aagaagcagg acagaggcaa cgtggagagg ctgaaaacag tgcagagacg 3700

tttgacaatg agtcagtagc acaaaagaga tgacatttac ctagcactat 3750

aaaccctggt tgcctctgaa gaaactgcct tcattgtata tatgtgacta 3800
```

80

```
tttacatgta atcaacatgg gaactttag gggaaccta taagaaatcc 3850

caattttcag gagtggtggt gtcaataaac gctctgtggc cagtgtaaaa 3900

gaaaaa 3906
```

<210> 84
<211> 867
<212> PRT
<213> Homo sapiens

<400> 84

```
Met Gly Pro Pro Ser Leu Val Leu Cys Leu Leu Ser Ala Thr Val
1               5                   10                  15

Phe Ser Leu Leu Gly Gly Ser Ser Ala Phe Leu Ser His His Arg
                20                  25                  30

Leu Lys Gly Arg Phe Gln Arg Asp Arg Arg Asn Ile Arg Pro Asn
                35                  40                  45

Ile Ile Leu Val Leu Thr Asp Asp Gln Asp Val Glu Leu Gly Ser
                50                  55                  60

Met Gln Val Met Asn Lys Thr Arg Arg Ile Met Glu Gln Gly Gly
                65                  70                  75

Ala His Phe Ile Asn Ala Phe Val Thr Thr Pro Met Cys Cys Pro
                80                  85                  90

Ser Arg Ser Ser Ile Leu Thr Gly Lys Tyr Val His Asn His Asn
                95                  100                 105

Thr Tyr Thr Asn Asn Glu Asn Cys Ser Ser Pro Ser Trp Gln Ala
                110                 115                 120

Gln His Glu Ser Arg Thr Phe Ala Val Tyr Leu Asn Ser Thr Gly
                125                 130                 135

Tyr Arg Thr Ala Phe Phe Gly Lys Tyr Leu Asn Glu Tyr Asn Gly
                140                 145                 150

Ser Tyr Val Pro Pro Gly Trp Lys Glu Trp Val Gly Leu Leu Lys
                155                 160                 165

Asn Ser Arg Phe Tyr Asn Tyr Thr Leu Cys Arg Asn Gly Val Lys
                170                 175                 180

Glu Lys His Gly Ser Asp Tyr Ser Lys Asp Tyr Leu Thr Asp Leu
                185                 190                 195

Ile Thr Asn Asp Ser Val Ser Phe Phe Arg Thr Ser Lys Lys Met
                200                 205                 210

Tyr Pro His Arg Pro Val Leu Met Val Ile Ser His Ala Ala Pro
                215                 220                 225

His Gly Pro Glu Asp Ser Ala Pro Gln Tyr Ser Arg Leu Phe Pro
                230                 235                 240

Asn Ala Ser Gln His Ile Thr Pro Ser Tyr Asn Tyr Ala Pro Asn
                245                 250                 255
```

81

```
Pro Asp Lys His Trp Ile Met Arg Tyr Thr Gly Pro Met Lys Pro
                260             265             270

Ile His Met Glu Phe Thr Asn Met Leu Gln Arg Lys Arg Leu Gln
                275             280             285

Thr Leu Met Ser Val Asp Asp Ser Met Glu Thr Ile Tyr Asn Met
                290             295             300

Leu Val Glu Thr Gly Glu Leu Asp Asn Thr Tyr Ile Val Tyr Thr
                305             310             315

Ala Asp His Gly Tyr His Ile Gly Gln Phe Gly Leu Val Lys Gly
                320             325             330

Lys Ser Met Pro Tyr Glu Phe Asp Ile Arg Val Pro Phe Tyr Val
                335             340             345

Arg Gly Pro Asn Val Glu Ala Gly Cys Leu Asn Pro His Ile Val
                350             355             360

Leu Asn Ile Asp Leu Ala Pro Thr Ile Leu Asp Ile Ala Gly Leu
                365             370             375

Asp Ile Pro Ala Asp Met Asp Gly Lys Ser Ile Leu Lys Leu Leu
                380             385             390

Asp Thr Glu Arg Pro Val Asn Arg Phe His Leu Lys Lys Lys Met
                395             400             405

Arg Val Trp Arg Asp Ser Phe Leu Val Glu Arg Gly Lys Leu Leu
                410             415             420

His Lys Arg Asp Asn Asp Lys Val Asp Ala Gln Glu Glu Asn Phe
                425             430             435

Leu Pro Lys Tyr Gln Arg Val Lys Asp Leu Cys Gln Arg Ala Glu
                440             445             450

Tyr Gln Thr Ala Cys Glu Gln Leu Gly Gln Lys Trp Gln Cys Val
                455             460             465

Glu Asp Ala Thr Gly Lys Leu Lys Leu His Lys Cys Lys Gly Pro
                470             475             480

Met Arg Leu Gly Gly Ser Arg Ala Leu Ser Asn Leu Val Pro Lys
                485             490             495

Tyr Tyr Gly Gln Gly Ser Glu Ala Cys Thr Cys Asp Ser Gly Asp
                500             505             510

Tyr Lys Leu Ser Leu Ala Gly Arg Arg Lys Lys Leu Phe Lys Lys
                515             520             525

Lys Tyr Lys Ala Ser Tyr Val Arg Ser Arg Ser Ile Arg Ser Val
                530             535             540

Ala Ile Glu Val Asp Gly Arg Val Tyr His Val Gly Leu Gly Asp
                545             550             555

Ala Ala Gln Pro Arg Asn Leu Thr Lys Arg His Trp Pro Gly Ala
                560             565             570
```

82

```
Pro Glu Asp Gln Asp Asp Lys Asp Gly Gly Asp Phe Ser Gly Thr
                  575         580                     585

Gly Gly Leu Pro Asp Tyr Ser Ala Ala Asn Pro Ile Lys Val Thr
                  590         595                     600

His Arg Cys Tyr Ile Leu Glu Asn Asp Thr Val Gln Cys Asp Leu
                  605         610                     615

Asp Leu Tyr Lys Ser Leu Gln Ala Trp Lys Asp His Lys Leu His
                  620         625                     630

Ile Asp His Glu Ile Glu Thr Leu Gln Asn Lys Ile Lys Asn Leu
                  635         640                     645

Arg Glu Val Arg Gly His Leu Lys Lys Lys Arg Pro Glu Glu Cys
                  650         655                     660

Asp Cys His Lys Ile Ser Tyr His Thr Gln His Lys Gly Arg Leu
                  665         670                     675

Lys His Arg Gly Ser Ser Leu His Pro Phe Arg Lys Gly Leu Gln
                  680         685                     690

Glu Lys Asp Lys Val Trp Leu Leu Arg Glu Gln Lys Arg Lys Lys
                  695         700                     705

Lys Leu Arg Lys Leu Leu Lys Arg Leu Gln Asn Asn Asp Thr Cys
                  710         715                     720

Ser Met Pro Gly Leu Thr Cys Phe Thr His Asp Asn Gln His Trp
                  725         730                     735

Gln Thr Ala Pro Phe Trp Thr Leu Gly Pro Phe Cys Ala Cys Thr
                  740         745                     750

Ser Ala Asn Asn Asn Thr Tyr Trp Cys Met Arg Thr Ile Asn Glu
                  755         760                     765

Thr His Asn Phe Leu Phe Cys Glu Phe Ala Thr Gly Phe Leu Glu
                  770         775                     780

Tyr Phe Asp Leu Asn Thr Asp Pro Tyr Gln Leu Met Asn Ala Val
                  785         790                     795

Asn Thr Leu Asp Arg Asp Val Leu Asn Gln Leu His Val Gln Leu
                  800         805                     810

Met Glu Leu Arg Ser Cys Lys Gly Tyr Lys Gln Cys Asn Pro Arg
                  815         820                     825

Thr Arg Asn Met Asp Leu Asp Gly Gly Ser Tyr Glu Gln Tyr Arg
                  830         835                     840

Gln Phe Gln Arg Arg Lys Trp Pro Glu Met Lys Arg Pro Ser Ser
                  845         850                     855

Lys Ser Leu Gly Gln Leu Trp Glu Gly Trp Glu Gly
                  860         865
```

<210> 85
<211> 19
<212> DNA

83

<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 85
gaagccggct gtctgaatc 19

<210> 86
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 86
ggccagctat ctccgcag 18

<210> 87
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 87
aagggcctgc aagagaag 18

<210> 88
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 88
cactgggaca actgtggg 18

<210> 89
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 89
cagaggcaac gtggagag 18

<210> 90
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 90
aagtattgtc atacagtgtt c 21

<210> 91
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 91
 tagtacttgg gcacgaggtt ggag 24

<210> 92
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 92
 tcataccaac tgctggtcat tggc 24

<210> 93
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 93
 ctcaagctgc tggacacgga gcggccggtg aatcggtttc acttg 45

<210> 94
<211> 971
<212> DNA
<213> Homo sapiens

<400> 94
 aacaaagttc agtgactgag agggctgagc ggaggctgct gaaggggaga 50

 aaggagtgag gagctgctgg gcagagaggg actgtccggc tcccagatgc 100

 tgggcctcct ggggagcaca gccctcgtgg gatggatcac aggtgctgct 150

 gtggcggtcc tgctgctgct gctgctgctg gccacctgcc ttttccacgg 200

 acggcaggac tgtgacgtgg agaggaaccg tacagctgca gggggaaacc 250

 gagtccgccg ggcccagcct tggcccttcc ggcggcgggg ccacctggga 300

 atctttcacc atcaccgtca tcctggccac gtatctcatg tgccgaatgt 350

 gggcctccac caccaccacc accccgcca cacccctcac cacctccacc 400

 accaccacca cccccaccgc caccatcccc gccacgctcg ctgaggctgc 450

 tgtcgccggt gcctgtggac agcagctgcc cctgccctcc catctgttcc 500

 caggacaagt ggaccccatg tttccatgtg gaaggatgca tctctggggt 550

 gaacgagggg aacaatagac tggggcttgc tccagctgca tttgcatggc 600

```
atgccccagt gtactatggc agcagagaat ggaggaacac tgggtctgca 650

gtgctgaagg gtttggggag tggagagcaa gggtgctctt tcggggctgg 700

acagcccgtc ttgtgacagt gactcccagt gagccccaga aatgacaagc 750

gtgtcttggc agagccagca cacaagtgga tgtgaagtgc ccgtcttgac 800

ctcctcatca ggctgctgca ggcctctggc gggcagggca ctgggagagg 850

ccctgagaat gtccttttgg tttggagaag gcagtgtgag gctgcacagt 900

caattcatcg gtgccttagt ccaagaaaat aaaaaccact aagaagcttt 950

aaaaaaaaaa aaaaaaaaaa a 971
```

```
<210> 95
<211> 115
<212> PRT
<213> Homo sapiens

<400> 95
 Met Leu Gly Leu Leu Gly Ser Thr Ala Leu Val Gly Trp Ile Thr
  1               5                  10                  15

 Gly Ala Ala Val Ala Val Leu Leu Leu Leu Leu Leu Leu Ala Thr
                 20                  25                  30

 Cys Leu Phe His Gly Arg Gln Asp Cys Asp Val Glu Arg Asn Arg
                 35                  40                  45

 Thr Ala Ala Gly Gly Asn Arg Val Arg Arg Ala Gln Pro Trp Pro
                 50                  55                  60

 Phe Arg Arg Arg Gly His Leu Gly Ile Phe His His His Arg His
                 65                  70                  75

 Pro Gly His Val Ser His Val Pro Asn Val Gly Leu His His His
                 80                  85                  90

 His His Pro Arg His Thr Pro His His Leu His His His His His
                 95                  100                 105

 Pro His Arg His His Pro Arg His Ala Arg
                 110                 115
```

```
<210> 96
<211> 1312
<212> DNA
<213> Homo sapiens

<400> 96
 ggcggctgct gagctgcctt gaggtgcagt gttggggatc cagagccatg 50

 tcggacctgc tactactggg cctgattggg ggcctgactc tcttactgct 100

 gctgacgctg ctggcctttg ccgggtactc agggctactg gctggggtgg 150

 aagtgagtgc tgggtcaccc cccatccgca acgtcactgt ggcctacaag 200

 ttccacatgg ggctctatgg tgagactggg cggctttttca ctgagagctg 250

 cagcatctct cccaagctcc gctccatcgc tgtctactat gacaaccccc 300
```

86

```
acatggtgcc ccctgataag tgccgatgtg ccgtgggcag catcctgagt 350

gaaggtgagg aatcgccctc ccctgagctc atcgacctct accagaaatt 400

tggcttcaag gtgttctcct tcccggcacc cagccatgtg gtgacagcca 450

ccttcccta caccaccatt ctgtccatct ggctggctac ccgccgtgtc 500

catcctgcct tggacaccta catcaaggag cggaagctgt gtgcctatcc 550

tcggcttggag atctaccagg aagaccagat ccatttcatg tgcccactgg 600

cacggcaggg agacttctat gtgcctgaga tgaaggagac agagtggaaa 650

tggcgggggc ttgtggaggc cattgacacc caggtggatg gcacaggagc 700

tgacacaatg agtgacacga gttctgtaag cttggaagtg agccctggca 750

gccgggagac ttcagctgcc acactgtcac ctggggcgag cagccgtggc 800

tgggatgacg gtgacacccg cagcgagcac agctacagcg agtcaggtgc 850

cagcggctcc tcttttgagg agctggactt ggagggcgag gggcccttag 900

gggagtcacg gctggaccct gggactgagc ccctggggac taccaagtgg 950

ctctgggagc ccactgcccc tgagaagggc aaggagtaac ccatggcctg 1000

caccctcctg cagtgcagtt gctgaggaac tgagcagact ctccagcaga 1050

ctctccagcc ctcttcctcc ttcctctggg ggaggagggg ttcctgaggg 1100

acctgacttc ccctgctcca ggcctcttgc taagccttct cctcactgcc 1150

ctttaggctc ccagggccag aggagccagg gactattttc tgcaccagcc 1200

cccagggctg ccgcccctgt tgtgtctttt tttcagactc acagtggagc 1250

ttccaggacc cagaataaag ccaatgattt acttgtttca cctggaaaaa 1300

aaaaaaaaaa aa 1312

<210> 97
<211> 313
<212> PRT
<213> Homo sapiens

<400> 97
 Met Ser Asp Leu Leu Leu Leu Gly Leu Ile Gly Gly Leu Thr Leu
  1               5                  10                  15

 Leu Leu Leu Leu Thr Leu Leu Ala Phe Ala Gly Tyr Ser Gly Leu
                20                  25                  30

 Leu Ala Gly Val Glu Val Ser Ala Gly Ser Pro Pro Ile Arg Asn
           .    35                  40                  45

 Val Thr Val Ala Tyr Lys Phe His Met Gly Leu Tyr Gly Glu Thr
                50                  55                  60

 Gly Arg Leu Phe Thr Glu Ser Cys Ser Ile Ser Pro Lys Leu Arg
                65                  70                  75
```

87

```
Ser Ile Ala Val Tyr Tyr Asp Asn Pro His Met Val Pro Pro Asp
              80                  85                  90

Lys Cys Arg Cys Ala Val Gly Ser Ile Leu Ser Glu Gly Glu Glu
              95                 100                 105

Ser Pro Ser Pro Glu Leu Ile Asp Leu Tyr Gln Lys Phe Gly Phe
             110                 115                 120

Lys Val Phe Ser Phe Pro Ala Pro Ser His Val Val Thr Ala Thr
             125                 130                 135

Phe Pro Tyr Thr Thr Ile Leu Ser Ile Trp Leu Ala Thr Arg Arg
             140                 145                 150

Val His Pro Ala Leu Asp Thr Tyr Ile Lys Glu Arg Lys Leu Cys
             155                 160                 165

Ala Tyr Pro Arg Leu Glu Ile Tyr Gln Glu Asp Gln Ile His Phe
             170                 175                 180

Met Cys Pro Leu Ala Arg Gln Gly Asp Phe Tyr Val Pro Glu Met
             185                 190                 195

Lys Glu Thr Glu Trp Lys Trp Arg Gly Leu Val Glu Ala Ile Asp
             200                 205                 210

Thr Gln Val Asp Gly Thr Gly Ala Asp Thr Met Ser Asp Thr Ser
             215                 220                 225

Ser Val Ser Leu Glu Val Ser Pro Gly Ser Arg Glu Thr Ser Ala
             230                 235                 240

Ala Thr Leu Ser Pro Gly Ala Ser Ser Arg Gly Trp Asp Asp Gly
             245                 250                 255

Asp Thr Arg Ser Glu His Ser Tyr Ser Glu Ser Gly Ala Ser Gly
             260                 265                 270

Ser Ser Phe Glu Glu Leu Asp Leu Glu Gly Glu Gly Pro Leu Gly
             275                 280                 285

Glu Ser Arg Leu Asp Pro Gly Thr Glu Pro Leu Gly Thr Thr Lys
             290                 295                 300

Trp Leu Trp Glu Pro Thr Ala Pro Glu Lys Gly Lys Glu
             305                 310
```

<210> 98
<211> 725
<212> DNA
<213> Homo sapiens

<400> 98
 ccgcgggaac gctgtcctgg ctgccgccac ccgaacagcc tgtcctggtg 50

 ccccggctcc ctgccccgcg cccagtcatg accctgcgcc cctcactcct 100

 cccgctccat ctgctgctgc tgctgctgct cagtgcggcg gtgtgccggg 150

 ctgaggctgg gctcgaaacc gaaagtcccg tccggaccct ccaagtggag 200

 accctggtgg agcccccaga accatgtgcc gagcccgctg cttttggaga 250

88

```
      cacgcttcac atacactaca cgggaagctt ggtagatgga cgtattattg 300

      acacctccct gaccagagac cctctggtta tagaacttgg ccaaaagcag 350

      gtgattccag gtctggagca gagtcttctc gacatgtgtg tgggagagaa 400

      gcgaagggca atcattcctt ctcacttggc ctatggaaaa cggggatttc 450

      caccatctgt cccagcggat gcagtggtgc agtatgacgt ggagctgatt 500

      gcactaatcc gagccaacta ctggctaaag ctggtgaagg gcattttgcc 550

      tctggtaggg atggccatgg tgccagccct cctgggcctc attgggtatc 600

      acctatacag aaaggccaat agacccaaag tctccaaaaa gaagctcaag 650

      gaagagaaac gaaacaagag caaaaagaaa taataaataa taaattttaa 700

      aaaacttaaa aaaaaaaaaa aaaaa 725
```

<210> 99
<211> 201
<212> PRT
<213> Homo sapiens

<400> 99

```
Met Thr Leu Arg Pro Ser Leu Leu Pro Leu His Leu Leu Leu Leu
 1               5                  10                      15

Leu Leu Leu Ser Ala Ala Val Cys Arg Ala Glu Ala Gly Leu Glu
               20                  25                      30

Thr Glu Ser Pro Val Arg Thr Leu Gln Val Glu Thr Leu Val Glu
               35                  40                      45

Pro Pro Glu Pro Cys Ala Glu Pro Ala Ala Phe Gly Asp Thr Leu
               50                  55                      60

His Ile His Tyr Thr Gly Ser Leu Val Asp Gly Arg Ile Ile Asp
               65                  70                     .75

Thr Ser Leu Thr Arg Asp Pro Leu Val Ile Glu Leu Gly Gln Lys
               80                  85                      90

Gln Val Ile Pro Gly Leu Glu Gln Ser Leu Leu Asp Met Cys Val
               95                 100                     105

Gly Glu Lys Arg Arg Ala Ile Ile Pro Ser His Leu Ala Tyr Gly
              110                 115                     120

Lys Arg Gly Phe Pro Pro Ser Val Pro Ala Asp Ala Val Val Gln
              125                 130                     135

Tyr Asp Val Glu Leu Ile Ala Leu Ile Arg Ala Asn Tyr Trp Leu
              140                 145                     150

Lys Leu Val Lys Gly Ile Leu Pro Leu Val Gly Met Ala Met Val
              155                 160                     165

Pro Ala Leu Leu Gly Leu Ile Gly Tyr His Leu Tyr Arg Lys Ala
              170                 175                     180

Asn Arg Pro Lys Val Ser Lys Lys Lys Leu Lys Glu Glu Lys Arg
```

89

Asn Lys Ser Lys Lys Lys
                200

<210> 100
<211> 705
<212> DNA
<213> Homo sapiens

<400> 100
 cccgggaacg tgttcctggc tgccgcaccc gaacagcctg tcctggtgcc 50

 ccggctccct gccccgcgcc cagtcatgac cctgcgcccc tcactcctcc 100

 cgctccatct gctgctgctg ctgctgctca gtgcggcggt gtgccgggct 150

 gaggctgggc tcgaaaccga aagtcccgtc cggaccctcc aagtggagac 200

 cctggtggag cccccagaac catgtgccga gcccgctgct tttggagaca 250

 cgcttcacat acactacacg ggaagcttgg tagatggacg tattattgac 300

 acctccctga ccagagaccc tctggttata gaacttggcc aaaagcaggt 350

 gattccaggt ctggagcaga gtcttctcga catgtgtgtg ggagagaagc 400

 gaagggcaat cattccttct cacttggcct atggaaaacg gggatttcca 450

 ccatctgtcc cagcggatgc agtggtgcag tatgacgtgg agctgattgc 500

 actaatccga gccaactact ggctaaagct ggtgaagggc attttgcctc 550

 tggtagggat ggccatggtg ccaccctcct gggcctcatt gggtatcacc 600

 tatacagaaa ggccaataga cccaaagtct ccaaaaagaa gctcaaggaa 650

 gagaaacgaa acaagagcaa aaagaaataa taaataataa attttaaaaa 700

 actta 705

<210> 101
<211> 543
<212> DNA
<213> Homo sapiens

<400> 101
 ccgaaagtcc cgtccggacc ctccaagtgg agaccctggt ggagccccca 50

 gaaccatgtg ccgagcccgc tgcttttgga gacacgcttc acatacacta 100

 cacgggaagc ttggtagatg gacgtattat tgacacctcc ctgaccagag 150

 accctctggt tatagaactt ggccaaaagc aggtgattcc aggtctggag 200

 cagagtcttc tcgacatgtg tgtgggagag aagcgaaggg caatcattcc 250

 ttctcacttg gcctatggaa aacggggatt tccaccatct gtcccagcgg 300

 atgcagtggt gcagtatgac gtggagctga ttgcactaat ccgagccaac 350

 tactggctaa agctggtgaa gggcattttg cctctggtag ggatggccat 400

```
ggtgccagcc ctcctgggcc tcattgggta tcacctatac agaaaggcca 450

atagacccaa agtctccaaa aagaagctca aggaagagaa acgaaacaag 500

agcaaaaaga aataataaat aataaatttt aaaaaactta aaa 543
```

<210> 102
<211> 1316
<212> DNA
<213> Homo sapiens

<400> 102
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ctgctgcatc cgggtgtctg gaggctgtgg ccgttttgtt ttcttggcta 50

aaatcggggg agtgaggcgg gccggcgcgg cgcgacaccg ggctccggaa 100

ccactgcacg acggggctgg actgacctga aaaaaatgtc tggatttcta 150

gagggcttga gatgctcaga atgcattgac tggggggaaa agcgcaatac 200

tattgcttcc attgctgctg gtgtactatt ttttacaggc tggtggatta 250

tcatagatgc agctgttatt tatcccacca tgaaagattt caaccactca 300

taccatgcct gtggtgttat agcaaccata gccttcctaa tgattaatgc 350

agtatcgaat ggacaagtcc gaggtgatag ttacagtgaa ggttgtctgg 400

gtcaaacagg tgctcgcatt tggcttttcg ttggtttcat gttggccttt 450

ggatctctga ttgcatctat gtggattctt tttggaggtt atgttgctaa 500

agaaaaagac atagtatacc ctggaattgc tgtatttttc cagaatgcct 550

tcatcttttt tggagggctg gttttttaagt ttggccgcac tgaagactta 600

tggcagtgaa cacatctgat ttcccacagc acaacagccc tgcatgggtt 650

tgtttgtttt tttactgctc actcccaacc ttttgtaatg ccattttcta 700

aacttatttc tgagtgtagt ctcagcttaa agttgtgtaa tactaaaatc 750

acgagaacac ctaaacaaca accaaaaatc tattgtggta tgcacttgat 800

taacttataa aatgttagag gaaactttca catgaataat ttttgtcaaa 850

ttttatcatg gtataatttg taaaaataaa aagaaattac aaaagaaatt 900

atggatttgt caatgtaagt atttgtcata tctgaggtcc aaaaccacaa 950

tgaaagtgct ctgaagattt aatgtgttta ttcaaatgtg gtctcttctg 1000

tgtcaaatgt taaatgaaat ataaacattt tttagttttt aaaatattcc 1050

gtggtcaaaa ttcttcctca ctataattgg tatttacttt taccaaaaat 1100

tctgtgaaca tgtaatgtaa ctggcttttg agggtctccc aagggtgag 1150

tggacgtgtt ggaagagaga agcaccatgg tccagccacc aggctccctg 1200

tgtcccttcc atgggaaggt cttccgctgt gcctctcatt ccaagggcag 1250

gaagatgtga ctcagccatg acacgtggtt ctggtgggat gcacagtcac 1300
```

91

tccacatcca ccactg 1316

<210> 103
<211> 157
<212> PRT
<213> Homo sapiens

<400> 103

```
Met Ser Gly Phe Leu Glu Gly Leu Arg Cys Ser Glu Cys Ile Asp
 1               5                  10                  15

Trp Gly Glu Lys Arg Asn Thr Ile Ala Ser Ile Ala Ala Gly Val
               20                  25                  30

Leu Phe Phe Thr Gly Trp Trp Ile Ile Ile Asp Ala Ala Val Ile
               35                  40                  45

Tyr Pro Thr Met Lys Asp Phe Asn His Ser Tyr His Ala Cys Gly
               50                  55                  60

Val Ile Ala Thr Ile Ala Phe Leu Met Ile Asn Ala Val Ser Asn
               65                  70                  75

Gly Gln Val Arg Gly Asp Ser Tyr Ser Glu Gly Cys Leu Gly Gln
               80                  85                  90

Thr Gly Ala Arg Ile Trp Leu Phe Val Gly Phe Met Leu Ala Phe
               95                  100                 105

Gly Ser Leu Ile Ala Ser Met Trp Ile Leu Phe Gly Gly Tyr Val
               110                 115                 120

Ala Lys Glu Lys Asp Ile Val Tyr Pro Gly Ile Ala Val Phe Phe
               125                 130                 135

Gln Asn Ala Phe Ile Phe Phe Gly Gly Leu Val Phe Lys Phe Gly
               140                 145                 150

Arg Thr Glu Asp Leu Trp Gln
               155
```

<210> 104
<211> 545
<212> DNA
<213> Homo sapiens

<400> 104

```
ttcttggcta aaatcggggg agtgaggcgg gccggcgcgg cgcgacaccg 50

ggctccggaa ccactgcacg acggggctgg actgacctga aaaaaatgtc 100

tggatttcta gagggcttga gatgctcaga atgcattgac tggggggaaa 150

agcgcaatac tattgcttcc attgctgctg gtgtactatt ttttacaggc 200

tggtggatta tcatagatgc agctgttatt tatcccacca tgaaagattt 250

caaccactca taccatgcct gtggtgttat agcaaccata gccttcctaa 300

tgattaatgc agtatcgaat ggacaagtcc gaggtgatag ttacagtgaa 350

ggttgtctgg gtcaaacagg tgctcgcatt tggcttttcg ttggtttcat 400
```

92

```
gttggccttt ggatctctga ttgcatctat gtggattctt tttggaggtt 450

atgttgctaa agaaaaagac atagtatacc ctggaattgc tgtatttttc 500

cagaatgcct tcatcttttt tggagggctg gtttttaagt ttggc 545
```

```
<210> 105
<211> 490
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 31, 39, 108, 145, 179, 219, 412, 479
<223> unknown base

<400> 105
```

```
tggacggacc tgaaaaaaat gtttggattt ntagagggnt tgagatgttc 50

agaatgcatg actgggggaa aagcgcaaat actattgctt ccattgctgc 100

tggtgtanta tttttacag gctggtggat tatcatagat gcagntgtta 150

tttatcccac catgaaagat ttcaaccant cataccatgc ctgtggtgtt 200

atagcaacca tagccttcnt aatgattaat gcagtatcga atggacaagt 250

ccgaggtgat agttacagtg aaggttgttt gggtcaaaca ggtgctcgca 300

tttggctttt cgttggtttc atgttggcct ttggatctct gattgcatct 350

atgtggattc tttttggagg ttatgttgct aaagaaaaag acatagtata 400

ccctggaatt gntgtatttt tccagaatgc cttcatcttt tttggagggc 450

tggtttttaa gtttggccgc actgaagant tatggcagtg 490
```

```
<210> 106
<211> 466
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 26, 38, 81, 115, 207, 329, 380, 446, 449
<223> unknown base

<400> 106
```

```
ggacaccggg ttccggacca atgcangacg gggtggantg acctgaaaaa 50

aatgtttgga tttttagagg gcttgagatg ntcagaatgc attgactggg 100

ggaaaagcgc aatantattg ctttccattg ctgctggtgt actattttt 150

acagggtggt ggattatcat agatgcagct gttatttatc ccaccatgaa 200

agatttnaac cactcatacc atgcctgtgg tgttatagca accatagcct 250

tcctaatgat taatgcagta tcgaatggac aagtccgagg tgatagttac 300

agtgaaggtt gtttgggtca aacaggtgnt cgcatttggc ttttcgttgg 350

tttcatgttg gcctttggat ttctgattgn attctatgcg gattcttctt 400
```

93

ggaggttatg ttgctaaaga aaaagacata gtataccctg gaattnctnt 450

attttttccag aatgcc 466

<210> 107
<211> 377
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 52, 67, 70, 78, 105, 144, 150, 209, 266, 268, 282, 310, 331, 356
<223> unknown base

<400> 107
tagagggctt gagatgctca gaatgcattg actgggggga aaagcgcaat 50

antattgctt ccattgntgn tggtgtanta ttttttttaca ggctggtgga 100

ttatnataga tgcagctgtt atttatccca ccatgaaaga tttnaaccan 150

tcataccatg cctgtggtgt tatagcaacc atagccttcc taatgattaa 200

tgcagtatng aatggacaag tccgaggtga tagttacagt gaaggttgtt 250

tgggtcaaac aggtgntngc atttggcttt tngttggttt catgttggcc 300

tttggatctn tgattgcatt tatgtggatt ntttttggag gttatgttgc 350

taaagnaaaa gacatagtat accctgt 377

<210> 108
<211> 552
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 12, 25, 65, 130, 437, 537
<223> unknown base

<400> 108
gggaggctgt gnccgttttg ttttnttggc taaaatcggg ggagtgaggc 50

ggcccggcgc ggcgngacac cgggttccgg gaaccattgc acgacggggt 100

ggactgacct gaaaaaaatg tttggatttn tagagggctt gagatgctca 150

gaatgcattg actgggggga aaagcgcaat actattgctt ccattgctgc 200

tggtgtacta tttttttacag gctggtggat tatcatagat gcagctgtta 250

tttatcccac catgaaagat ttcaaccact cataccatgc ctgtggtgtt 300

atagcaacca tagccttcct aatgattaat gcagtatcga atggacaagt 350

ccgaggtgat agttacagtg aaggttgtct gggtcaaaca ggtgctcgca 400

tttggctttt cgttggtttc atgttggcct ttggatntct gattgcatct 450

atgtggattc tttttggagg ttatgttgct aaagaaaaag acatagtata 500

ccctggaatt gctgtatttt tccagaatgc cttcatnttt tttggagggc 550

tg 552

<210> 109
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 109
gggtggatgg tactgctgca tcc 23

<210> 110
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 110
tgttgtgctg tgggaaatca gatgtg 26

<210> 111
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 111
gtgtctggag gctgtggccg ttttgttttc ttgggctaaa atcggg 46

<210> 112
<211> 3004
<212> DNA
<213> Homo sapiens

<400> 112
cgacgccggc gtgatgtggc ttccgctggt gctgctcctg gctgtgctgc 50

tgctggccgt cctctgcaaa gtttacttgg gactattctc tggcagctcc 100

ccgaatcctt tctccgaaga tgtcaaacgg cccccagcgc ccctggtaac 150

tgacaaggag gccaggaaga aggttctcaa acaagctttt tcagccaacc 200

aagtgccgga gaagctggat gtggtggtaa ttggcagtgg ctttgggggc 250

ctggctgcag ctgcaattct agctaaagct ggcaagcgag tcctggtgct 300

ggaacaacat accaaggcag ggggctgctg tcataccttt ggaaagaatg 350

gccttgaatt tgacacagga atccattaca ttgggcgtat ggaagagggc 400

agcattggcc gttttatctt ggaccagatc actgaagggc agctggactg 450

ggctcccctg tcctctcctt ttgacatcat ggtactggaa gggcccaatg 500

gccgaaagga gtaccccatg tacagtggag agaaagccta cattcagggc 550

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ctcaaggaga agtttccaca ggaggaagct atcattgaca agtatataaa 600

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gaatctgggc caatggaatc actgcttcca gctggggcag gtgagatctt 2050

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gcttgatgtc tcatgacgag cggcgctctg catccctcac ccatgcctcc 2150
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96

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taactcagtg atcaaagcga atattccatc tgtggataga acccctggca 2200

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ctcattcatt tagtgctacg ctgcacagtt ctacactgtc aagggaaaag 2300

ggagactaat gaggcttaac tcaaaacctg ggcgtggttt tggttgccat 2350

tccataggtt tggagagctc tagatctctt ttgtgctggg ttcagtggct 2400

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aggtgtgggg taagggaggg aagtcacatc agaaaaggga aagccacgga 2800

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ggttagacag gtaggtgaat gcaagctcaa ggtttggaaa aatgactttt 2900

cagttatgtc tttggtatca gacatacgaa aggtctcttt gtagttcgtg 2950

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aaaa 3004

<210> 113
<211> 610
<212> PRT
<213> Homo sapiens

<400> 113
Met Trp Leu Pro Leu Val Leu Leu Leu Ala Val Leu Leu Leu Ala
 1               5                  10                  15

Val Leu Cys Lys Val Tyr Leu Gly Leu Phe Ser Gly Ser Ser Pro
                20                  25                  30

Asn Pro Phe Ser Glu Asp Val Lys Arg Pro Pro Ala Pro Leu Val
                35                  40                  45

Thr Asp Lys Glu Ala Arg Lys Lys Val Leu Lys Gln Ala Phe Ser
                50                  55                  60

Ala Asn Gln Val Pro Glu Lys Leu Asp Val Val Val Ile Gly Ser
                65                  70                  75

Gly Phe Gly Gly Leu Ala Ala Ala Ala Ile Leu Ala Lys Ala Gly
                80                  85                  90

Lys Arg Val Leu Val Leu Glu Gln His Thr Lys Ala Gly Gly Cys
                95                  100                 105
```

97

```
Cys His Thr Phe Gly Lys Asn Gly Leu Glu Phe Asp Thr Gly Ile
             110                 115                 120

His Tyr Ile Gly Arg Met Glu Glu Gly Ser Ile Gly Arg Phe Ile
             125                 130                 135

Leu Asp Gln Ile Thr Glu Gly Gln Leu Asp Trp Ala Pro Leu Ser
             140                 145                 150

Ser Pro Phe Asp Ile Met Val Leu Glu Gly Pro Asn Gly Arg Lys
             155                 160                 165

Glu Tyr Pro Met Tyr Ser Gly Glu Lys Ala Tyr Ile Gln Gly Leu
             170                 175                 180

Lys Glu Lys Phe Pro Gln Glu Glu Ala Ile Ile Asp Lys Tyr Ile
             185                 190                 195

Lys Leu Val Lys Val Val Ser Ser Gly Ala Pro His Ala Ile Leu
             200                 205                 210

Leu Lys Phe Leu Pro Leu Pro Val Val Gln Leu Leu Asp Arg Cys
             215                 220                 225

Gly Leu Leu Thr Arg Phe Ser Pro Phe Leu Gln Ala Ser Thr Gln
             230                 235                 240

Ser Leu Ala Glu Val Leu Gln Gln Leu Gly Ala Ser Ser Glu Leu
             245                 250                 255

Gln Ala Val Leu Ser Tyr Ile Phe Pro Thr Tyr Gly Val Thr Pro
             260                 265                 270

Asn His Ser Ala Phe Ser Met His Ala Leu Leu Val Asn His Tyr
             275                 280                 285

Met Lys Gly Gly Phe Tyr Pro Arg Gly Gly Ser Ser Glu Ile Ala
             290                 295                 300

Phe His Thr Ile Pro Val Ile Gln Arg Ala Gly Gly Ala Val Leu
             305                 310                 315

Thr Lys Ala Thr Val Gln Ser Val Leu Leu Asp Ser Ala Gly Lys
             320                 325                 330

Ala Cys Gly Val Ser Val Lys Lys Gly His Glu Leu Val Asn Ile
             335                 340                 345

Tyr Cys Pro Ile Val Val Ser Asn Ala Gly Leu Phe Asn Thr Tyr
             350                 355                 360

Glu His Leu Leu Pro Gly Asn Ala Arg Cys Leu Pro Gly Val Lys
             365                 370                 375

Gln Gln Leu Gly Thr Val Arg Pro Gly Leu Gly Met Thr Ser Val
             380                 385                 390

Phe Ile Cys Leu Arg Gly Thr Lys Glu Asp Leu His Leu Pro Ser
             395                 400                 405

Thr Asn Tyr Tyr Val Tyr Tyr Asp Thr Asp Met Asp Gln Ala Met
             410                 415                 420
```

98

```
Glu Arg Tyr Val Ser Met Pro Arg Glu Glu Ala Ala Glu His Ile
                425             430                         435

Pro Leu Leu Phe Phe Ala Phe Pro Ser Ala Lys Asp Pro Thr Trp
                440             445                         450

Glu Asp Arg Phe Pro Gly Arg Ser Thr Met Ile Met Leu Ile Pro
                455             460                         465

Thr Ala Tyr Glu Trp Phe Glu Glu Trp Gln Ala Glu Leu Lys Gly
                470             475                         480

Lys Arg Gly Ser Asp Tyr Glu Thr Phe Lys Asn Ser Phe Val Glu
                485             490                         495

Ala Ser Met Ser Val Val Leu Lys Leu Phe Pro Gln Leu Glu Gly
                500             505                         510

Lys Val Glu Ser Val Thr Ala Gly Ser Pro Leu Thr Asn Gln Phe
                515             520                         525

Tyr Leu Ala Ala Pro Arg Gly Ala Cys Tyr Gly Ala Asp His Asp
                530             535                         540

Leu Gly Arg Leu His Pro Cys Val Met Ala Ser Leu Arg Ala Gln
                545             550                         555

Ser Pro Ile Pro Asn Leu Tyr Leu Thr Gly Gln Asp Ile Phe Thr
                560             565                         570

Cys Gly Leu Val Gly Ala Leu Gln Gly Ala Leu Leu Cys Ser Ser
                575             580                         585

Ala Ile Leu Lys Arg Asn Leu Tyr Ser Asp Leu Lys Asn Leu Asp
                590             595                         600

Ser Arg Ile Arg Ala Gln Lys Lys Lys Asn
                605             610
```

<210> 114
<211> 1701
<212> DNA
<213> Homo sapiens

<400> 114

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 gcgacagctc taggggttgg caccggcccc gagaggagga tgcgggtccg 100

 gatagggctg acgctgctgc tgtgtgcggt gctgctgagc ttggcctcgg 150

 cgtcctcgga tgaagaaggc agccaggatg aatccttaga ttccaagact 200

 actttgacat cagatgagtc agtaaaggac catactactg caggcagagt 250

 agttgctggt caaatatttc ttgattcaga agaatctgaa ttagaatcct 300

 ctattcaaga gaggaagac agcctcaaga gccaagaggg ggaaagtgtc 350

 acagaagata tcagctttct agagtctcca aatccagaaa acaaggacta 400

 tgaagagcca aagaaagtac ggaaaccagc tttgaccgcc attgaaggca 450
```

99

```
cagcacatgg ggagccctgc cacttccctt ttcttttcct agataaggag 500

tatgatgaat gtacatcaga tgggagggaa gatggcagac tgtggtgtgc 550

tacaacctat gactacaaag cagatgaaaa gtggggcttt tgtgaaactg 600

aagaagaggc tgctaagaga cggcagatgc aggaagcaga aatgatgtat 650

caaactggaa tgaaatcct taatggaagc aataagaaaa gccaaaaaag 700

agaagcatat cggtatctcc aaaaggcagc aagcatgaac cataccaaag 750

ccctggagag agtgtcatat gctcttttat ttggtgatta cttgccacag 800

aatatccagg cagcgagaga gatgtttgag aagctgactg aggaaggctc 850

tcccaaggga cagactgctc ttggctttct gtatgcctct ggacttggtg 900

ttaattcaag tcaggcaaag gctcttgtat attatacatt tggagctctt 950

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gttgaacttc cttcaaattc ttgttaatgg atataacaca tggaatctac 1150

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ttttctctga gttggaattg tcagaatcat tttttacatt agattatcat 1300

aattttaaaa atttttcttt agtttttcaa aatttttgtaa atggtggcta 1350

tagaaaaaca acatgaaata ttatacaata ttttgcaaca atgccctaag 1400

aattgttaaa attcatggag ttatttgtgc agaatgactc cagagagctc 1450

tactttctgt tttttacttt tcatgattgg ctgtcttccc atttattctg 1500

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ctattttgct aatttgttac tttttctttg ctaatttgga agattaactc 1600

attttaata aaattatgtc taagattaaa aaaaaaaaaa aaaaaaaaaa 1650

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a 1701

<210> 115
<211> 301
<212> PRT
<213> Homo sapiens

<400> 115
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Met Arg Val Arg Ile Gly Leu Thr Leu Leu Leu Cys Ala Val Leu
 1               5               10              15

Leu Ser Leu Ala Ser Ala Ser Ser Asp Glu Glu Gly Ser Gln Asp
                20              25              30
```

```
Glu Ser Leu Asp Ser Lys Thr Thr Leu Thr Ser Asp Glu Ser Val
            35                  40                  45
Lys Asp His Thr Thr Ala Gly Arg Val Val Ala Gly Gln Ile Phe
            50                  55                  60
Leu Asp Ser Glu Glu Ser Glu Leu Glu Ser Ser Ile Gln Glu Glu
            65                  70                  75
Glu Asp Ser Leu Lys Ser Gln Glu Gly Glu Ser Val Thr Glu Asp
            80                  85                  90
Ile Ser Phe Leu Glu Ser Pro Asn Pro Glu Asn Lys Asp Tyr Glu
            95                  100                 105
Glu Pro Lys Lys Val Arg Lys Pro Ala Leu Thr Ala Ile Glu Gly
            110                 115                 120
Thr Ala His Gly Glu Pro Cys His Phe Pro Phe Leu Phe Leu Asp
            125                 130                 135
Lys Glu Tyr Asp Glu Cys Thr Ser Asp Gly Arg Glu Asp Gly Arg
            140                 145                 150
Leu Trp Cys Ala Thr Thr Tyr Asp Tyr Lys Ala Asp Glu Lys Trp
            155                 160                 165
Gly Phe Cys Glu Thr Glu Glu Glu Ala Ala Lys Arg Arg Gln Met
            170                 175                 180
Gln Glu Ala Glu Met Met Tyr Gln Thr Gly Met Lys Ile Leu Asn
            185                 190                 195
Gly Ser Asn Lys Lys Ser Gln Lys Arg Glu Ala Tyr Arg Tyr Leu
            200                 205                 210
Gln Lys Ala Ala Ser Met Asn His Thr Lys Ala Leu Glu Arg Val
            215                 220                 225
Ser Tyr Ala Leu Leu Phe Gly Asp Tyr Leu Pro Gln Asn Ile Gln
            230                 235                 240
Ala Ala Arg Glu Met Phe Glu Lys Leu Thr Glu Glu Gly Ser Pro
            245                 250                 255
Lys Gly Gln Thr Ala Leu Gly Phe Leu Tyr Ala Ser Gly Leu Gly
            260                 265                 270
Val Asn Ser Ser Gln Ala Lys Ala Leu Val Tyr Tyr Thr Phe Gly
            275                 280                 285
Ala Leu Gly Gly Asn Leu Ile Ala His Met Val Leu Val Ser Arg
            290                 295                 300
Leu
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<210> 116
<211> 584
<212> DNA
<213> Homo sapiens

<400> 116

101

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cttccttctg atggggacct tcctgtcagt ttcccagaca gtcctggccc 150

agctggatgc actgctggtc ttcccaggcc aagtggctca actctcctgc 200

acgctcagcc cccagcacgt caccatcagg gactacggtg tgtcctggta 250

ccagcagcgg gcaggcagtg cccctcgata tctcctctac taccgctcgg 300

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aaggatgagg cccacaatgc ctgtgtcctc accattagtc ccgtgcagcc 400

tgaagacgac gcggattact actgctctgt tggctacggc tttagtccct 450

aggggtgggg tgtgagatgg gtgcctcccc tctgcctccc atttctgccc 500

ctgaccttgg gtccctttta aactttctct gagccttgct tcccctctgt 550

aaaatgggtt aataatattc aacatgtcaa caac 584

<210> 117
<211> 123
<212> PRT
<213> Homo sapiens

<400> 117
Met Ala Cys Arg Cys Leu Ser Phe Leu Leu Met Gly Thr Phe Leu
1   5   10   15

Ser Val Ser Gln Thr Val Leu Ala Gln Leu Asp Ala Leu Leu Val
                20   25   30

Phe Pro Gly Gln Val Ala Gln Leu Ser Cys Thr Leu Ser Pro Gln
                35   40   45

His Val Thr Ile Arg Asp Tyr Gly Val Ser Trp Tyr Gln Gln Arg
                50   55   60

Ala Gly Ser Ala Pro Arg Tyr Leu Leu Tyr Tyr Arg Ser Glu Glu
                65   70   75

Asp His His Arg Pro Ala Asp Ile Pro Asp Arg Phe Ser Ala Ala
                80   85   90

Lys Asp Glu Ala His Asn Ala Cys Val Leu Thr Ile Ser Pro Val
                95   100   105

Gln Pro Glu Asp Asp Ala Asp Tyr Tyr Cys Ser Val Gly Tyr Gly
                110   115   120

Phe Ser Pro

<210> 118
<211> 3402
<212> DNA
<213> Homo sapiens

<400> 118

102

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gccgccccgc cccgagaccg ggcccggggg cgcggggcgg cgggatgcgg 50

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ccccgccgcc cgcccgctga gccccccgcc gaggtccgga caggccgaga 150

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ggtctccggc agccccccag cacttactgg gcccaggccc agttgctggc 1550

cctaagttgt accccaaact ctacacagac atccacacac acacacacac 1600
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gggacccatg gcgaggagga atggccagca ccccaggcag tctgtgtgtg 1800

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atgtatgcac acacatgcgc gcacacgtgc tccctgaagg cacacgtacg 1900

cacacgcaca tgcacagata tgccgcctgg gcacacagat aagctgccca 1950

aatgcacgca cacgcacaga gacatgccag aacatacaag gacatgctgc 2000

ctgaacatac acacgcacac ccatgcgcag atgtgctgcc tggacacaca 2050

cacacacacg gatatgctgt ctggacgcac acacgtgcag atatggtatc 2100

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ggacacacac acgcatgcac agatatgctg tccggacaca cacacgcacg 2400

cagatatgct gcctggacac acacacagat aatgctgcct caacactcac 2450

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ggacatgcac acacgtgcag atatgctgtc cggatacaca cgcacgcaca 2550

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cccatggcta gtggctcatc cccagtgcat tctccccctg acacagagaa 3150

ggggccttgg tatttatatt taagaaatga agataatatt aataatgatg 3200
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104

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cgcctggtct ttcagccatg ctgatgacca caccccgtcc aggccagaca 3300

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tagagtttga gctgaagccc cgtatattta atttattttg ttaaacacaa 3400

aa 3402

<210> 119
<211> 504
<212> PRT
<213> Homo sapiens

<400> 119

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Met Thr Pro Ser Pro Leu Leu Leu Leu Leu Leu Pro Pro Leu Leu
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Leu Gly Ala Phe Pro Pro Ala Ala Ala Ala Arg Gly Pro Pro Lys
                20                  25                  30

Met Ala Asp Lys Val Val Pro Arg Gln Val Ala Arg Leu Gly Arg
                35                  40                  45

Thr Val Arg Leu Gln Cys Pro Val Glu Gly Asp Pro Pro Pro Leu
                50                  55                  60

Thr Met Trp Thr Lys Asp Gly Arg Thr Ile His Ser Gly Trp Ser
                65                  70                  75

Arg Phe Arg Val Leu Pro Gln Gly Leu Lys Val Lys Gln Val Glu
                80                  85                  90

Arg Glu Asp Ala Gly Val Tyr Val Cys Lys Ala Thr Asn Gly Phe
                95                  100                 105

Gly Ser Leu Ser Val Asn Tyr Thr Leu Val Val Leu Asp Asp Ile
                110                 115                 120

Ser Pro Gly Lys Glu Ser Leu Gly Pro Asp Ser Ser Ser Gly Gly
                125                 130                 135

Gln Glu Asp Pro Ala Ser Gln Gln Trp Ala Arg Pro Arg Phe Thr
                140                 145                 150

Gln Pro Ser Lys Met Arg Arg Arg Val Ile Ala Arg Pro Val Gly
                155                 160                 165

Ser Ser Val Arg Leu Lys Cys Val Ala Ser Gly His Pro Arg Pro
                170                 175                 180

Asp Ile Thr Trp Met Lys Asp Asp Gln Ala Leu Thr Arg Pro Glu
                185                 190                 195

Ala Ala Glu Pro Arg Lys Lys Lys Trp Thr Leu Ser Leu Lys Asn
                200                 205                 210

Leu Arg Pro Glu Asp Ser Gly Lys Tyr Thr Cys Arg Val Ser Asn
                215                 220                 225

Arg Ala Gly Ala Ile Asn Ala Thr Tyr Lys Val Asp Val Ile Gln
                230                 235                 240
```

105

```
Arg Thr Arg Ser Lys Pro Val Leu Thr Gly Thr His Pro Val Asn
                245             250                     255

Thr Thr Val Asp Phe Gly Gly Thr Thr Ser Phe Gln Cys Lys Val
                260             265                     270

Arg Ser Asp Val Lys Pro Val Ile Gln Trp Leu Lys Arg Val Glu
                275             280                     285

Tyr Gly Ala Glu Gly Arg His Asn Ser Thr Ile Asp Val Gly Gly
                290             295                     300

Gln Lys Phe Val Val Leu Pro Thr Gly Asp Val Trp Ser Arg Pro
                305             310                     315

Asp Gly Ser Tyr Leu Asn Lys Leu Leu Ile Thr Arg Ala Arg Gln
                320             325                     330

Asp Asp Ala Gly Met Tyr Ile Cys Leu Gly Ala Asn Thr Met Gly
                335             340                     345

Tyr Ser Phe Arg Ser Ala Phe Leu Thr Val Leu Pro Asp Pro Lys
                350             355                     360

Pro Pro Gly Pro Pro Val Ala Ser Ser Ser Ser Ala Thr Ser Leu
                365             370                     375

Pro Trp Pro Val Val Ile Gly Ile Pro Ala Gly Ala Val Phe Ile
                380             385                     390

Leu Gly Thr Leu Leu Leu Trp Leu Cys Gln Ala Gln Lys Lys Pro
                395             400                     405

Cys Thr Pro Ala Pro Ala Pro Pro Leu Pro Gly His Arg Pro Pro
                410             415                     420

Gly Thr Ala Arg Asp Arg Ser Gly Asp Lys Asp Leu Pro Ser Leu
                425             430                     435

Ala Ala Leu Ser Ala Gly Pro Gly Val Gly Leu Cys Glu Glu His
                440             445                     450

Gly Ser Pro Ala Ala Pro Gln His Leu Leu Gly Pro Gly Pro Val
                455             460                     465

Ala Gly Pro Lys Leu Tyr Pro Lys Leu Tyr Thr Asp Ile His Thr
                470             475                     480

His Thr His Thr His Ser His Thr His Ser His Val Glu Gly Lys
                485             490                     495

Val His Gln His Ile His Tyr Gln Cys
                500
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<210> 120
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<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 120
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<210> 121
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 121
 cggttcgaca cgcggcaggt g 21

<210> 122
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 122
 tgctgctcct gctgccgccg ctgctgctgg gggccttccc gccgg 45

<210> 123
<211> 4420
<212> DNA
<213> Homo sapiens

<400> 123
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 cccaggggac cgcattccag agtcagtgac tctgtgaagc acccacatct 100

 acctcttgcc acgttcccac gggcttgggg gaaagatggt ggggaccaag 150

 gcctgggtgt tctccttcct ggtcctggaa gtcacatctg tgttggggag 200

 acagacgatg ctcacccagt cagtaagaag agtccagcct gggaagaaga 250

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 tggacaacat ggttcaacat cgactaccca ggcgggaagg gcgactatga 350

 gcggctggac gccattcgct tctactatgg ggaccgtgta tgtgcccgtc 400

 ccctgcggct agaggctcgg accactgact ggacacctgc gggcagcact 450

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                       107
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aagcatcctg aagatcacaa aggtcaagtt tgcccccatt gtactcacaa 1000

tgcccaagac tagcctgaag gcagccacca tcaaggcaga gtttgtgagg 1050

gcagagactc catacatggt gatgaaccct gagacaaaag cacggagagc 1100

tgggcagagc gtgtctctgt gctgtaaggc cacagggaag cccaggccag 1150

acaagtattt ttggtatcat aatgacacat tgctggatcc ttccctctac 1200

aagcatgaga gcaagctggt gctgaggaaa ctgcagcagc accaggctgg 1250

ggagtacttt tgcaaggccc agagtgatgc tggggctgtg aagtccaagg 1300

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cctgagagct atcttatccg gctgccccat gattgctttc agaatgccac 1400

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acgtatggca tgttctctgt ggacttcaga gatgaggtca cctcagagcc 2150

acttaatgct ggcaaagtga aggtccacct tgactcgacc caggtcaaga 2200

tgccagagca catatccaca gtgaaactct ggtcactcaa tccagacaca 2250

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108

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gcctgtgtgc ctgccttctg tgatgaccag tcccctgatg cctactctgc 2600

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atgtgaggag cactcgggac agggaccagc ccaatgtctc agctgcctgt 3150

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aacgacacca gtgagtacac catgctggca cccttggacc cactgggcca 3350

caactatggc atctacactg tcactgacca ggaccctcgc acggccaagg 3400

agatcgcgct cggccggtgc tttgatggca catccgatgg ctcctccaga 3450

atcatgaaga gcaatgtggg agtagccctc accttcaact gtgtagagag 3500

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tgcacaaact gtcacttggt taatttaagc acttctgttt tcgtgaattt 3800

gcttgtttgt ttcttcatgc ctttacttac tttgtcccat gctactgatt 3850

ggcacgtggc ccccacaatg gcacaataaa gcccctttgt gaaactgttc 3900

tttaaatgaa acacaagaaa ttggccactg gtaaaactct gcagcttcaa 3950

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catggttttg cccacctctg caatagtgat aatctgatgc tgaagatcaa 4050
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109

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ataaccaata taaagcatat ttcttggcct tgctccacag gacataggca 4100

agccttgatc atagttcata catataaatg gtggtgaaat aaagaaataa 4150

aacacaaatc ttttacttga aatgtaaata acttatttat ttctttgcta 4200

aatttggaat tctagtgcac attcaaagtt aagctattaa atataggtg 4250

atcatagttc ctctaccaag tctggaaaga acatctcctg gtatccacaa 4300

ttacaccagg ttgctaactg tatttgtaca tttccctttg cattcgcttt 4350

tgttcttgct agaaacccag tgtagcccag ggcagatgtc aataaatgca 4400

tactctgtat ttcgaaaaaa 4420
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<210> 124
<211> 1184
<212> PRT
<213> Homo sapiens

<400> 124

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 1               5                  10                  15

Val Thr Ser Val Leu Gly Arg Gln Thr Met Leu Thr Gln Ser Val
                20                  25                  30

Arg Arg Val Gln Pro Gly Lys Lys Asn Pro Ser Ile Phe Ala Lys
                35                  40                  45

Pro Ala Asp Thr Leu Glu Ser Pro Gly Glu Trp Thr Thr Trp Phe
                50                  55                  60

Asn Ile Asp Tyr Pro Gly Gly Lys Gly Asp Tyr Glu Arg Leu Asp
                65                  70                  75

Ala Ile Arg Phe Tyr Tyr Gly Asp Arg Val Cys Ala Arg Pro Leu
                80                  85                  90

Arg Leu Glu Ala Arg Thr Thr Asp Trp Thr Pro Ala Gly Ser Thr
                95                  100                 105

Gly Gln Val Val His Gly Ser Pro Arg Glu Gly Phe Trp Cys Leu
                110                 115                 120

Asn Arg Glu Gln Arg Pro Gly Gln Asn Cys Ser Asn Tyr Thr Val
                125                 130                 135

Arg Phe Leu Cys Pro Pro Gly Ser Leu Arg Arg Asp Thr Glu Arg
                140                 145                 150

Ile Trp Ser Pro Trp Ser Pro Trp Ser Lys Cys Ser Ala Ala Cys
                155                 160                 165

Gly Gln Thr Gly Val Gln Thr Arg Thr Arg Ile Cys Leu Ala Glu
                170                 175                 180

Met Val Ser Leu Cys Ser Glu Ala Ser Glu Glu Gly Gln His Cys
                185                 190                 195

Met Gly Gln Asp Cys Thr Ala Cys Asp Leu Thr Cys Pro Met Gly
                200                 205                 210
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110

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Gln Val Asn Ala Asp Cys Asp Ala Cys Met Cys Gln Asp Phe Met
              215             220                     225

Leu His Gly Ala Val Ser Leu Pro Gly Gly Ala Pro Ala Ser Gly
              230             235                     240

Ala Ala Ile Tyr Leu Leu Thr Lys Thr Pro Lys Leu Leu Thr Gln
              245             250                     255

Thr Asp Ser Asp Gly Arg Phe Arg Ile Pro Gly Leu Cys Pro Asp
              260             265                     270

Gly Lys Ser Ile Leu Lys Ile Thr Lys Val Lys Phe Ala Pro Ile
              275             280                     285

Val Leu Thr Met Pro Lys Thr Ser Leu Lys Ala Ala Thr Ile Lys
              290             295                     300

Ala Glu Phe Val Arg Ala Glu Thr Pro Tyr Met Val Met Asn Pro
              305             310                     315

Glu Thr Lys Ala Arg Arg Ala Gly Gln Ser Val Ser Leu Cys Cys
              320             325                     330

Lys Ala Thr Gly Lys Pro Arg Pro Asp Lys Tyr Phe Trp Tyr His
              335             340                     345

Asn Asp Thr Leu Leu Asp Pro Ser Leu Tyr Lys His Glu Ser Lys
              350             355                     360

Leu Val Leu Arg Lys Leu Gln Gln His Gln Ala Gly Glu Tyr Phe
              365             370                     375

Cys Lys Ala Gln Ser Asp Ala Gly Ala Val Lys Ser Lys Val Ala
              380             385                     390

Gln Leu Ile Val Thr Ala Ser Asp Glu Thr Pro Cys Asn Pro Val
              395             400                     405

Pro Glu Ser Tyr Leu Ile Arg Leu Pro His Asp Cys Phe Gln Asn
              410             415                     420

Ala Thr Asn Ser Phe Tyr Tyr Asp Val Gly Arg Cys Pro Val Lys
              425             430                     435

Thr Cys Ala Gly Gln Gln Asp Asn Gly Ile Arg Cys Arg Asp Ala
              440             445                     450

Val Gln Asn Cys Cys Gly Ile Ser Lys Thr.Glu Glu Arg Glu Ile
              455             460                     465

Gln Cys Ser Gly Tyr Thr Leu Pro Thr Lys Val Ala Lys Glu Cys
              470             475                     480

Ser Cys Gln Arg Cys Thr Glu Thr Arg Ser Ile Val Arg Gly Arg
              485             490                     495

Val Ser Ala Ala Asp Asn Gly Glu Pro Met Arg Phe Gly His Val
              500             505                     510

Tyr Met Gly Asn Ser Arg Val Ser Met Thr Gly Tyr Lys Gly Thr
              515             520                     525
```

```
Phe Thr Leu His Val Pro Gln Asp Thr Glu Arg Leu Val Leu Thr
                 530             535                 540

Phe Val Asp Arg Leu Gln Lys Phe Val Asn Thr Thr Lys Val Leu
                 545             550                 555

Pro Phe Asn Lys Lys Gly Ser Ala Val Phe His Glu Ile Lys Met
                 560             565                 570

Leu Arg Arg Lys Glu Pro Ile Thr Leu Glu Ala Met Glu Thr Asn
                 575             580                 585

Ile Ile Pro Leu Gly Glu Val Val Gly Glu Asp Pro Met Ala Glu
                 590             595                 600

Leu Glu Ile Pro Ser Arg Ser Phe Tyr Arg Gln Asn Gly Glu Pro
                 605             610                 615

Tyr Ile Gly Lys Val Lys Ala Ser Val Thr Phe Leu Asp Pro Arg
                 620             625                 630

Asn Ile Ser Thr Ala Thr Ala Ala Gln Thr Asp Leu Asn Phe Ile
                 635             640                 645

Asn Asp Glu Gly Asp Thr Phe Pro Leu Arg Thr Tyr Gly Met Phe
                 650             655                 660

Ser Val Asp Phe Arg Asp Glu Val Thr Ser Glu Pro Leu Asn Ala
                 665             670                 675

Gly Lys Val Lys Val His Leu Asp Ser Thr Gln Val Lys Met Pro
                 680             685                 690

Glu His Ile Ser Thr Val Lys Leu Trp Ser Leu Asn Pro Asp Thr
                 695             700                 705

Gly Leu Trp Glu Glu Glu Gly Asp Phe Lys Phe Glu Asn Gln Arg
                 710             715                 720

Arg Asn Lys Arg Glu Asp Arg Thr Phe Leu Val Gly Asn Leu Glu
                 725             730                 735

Ile Arg Glu Arg Arg Leu Phe Asn Leu Asp Val Pro Glu Ser Arg
                 740             745                 750

Arg Cys Phe Val Lys Val Arg Ala Tyr Arg Ser Glu Arg Phe Leu
                 755             760                 765

Pro Ser Glu Gln Ile Gln Gly Val Val Ile Ser Val Ile Asn Leu
                 770             775                 780

Glu Pro Arg Thr Gly Phe Leu Ser Asn Pro Arg Ala Trp Gly Arg
                 785             790                 795

Phe Asp Ser Val Ile Thr Gly Pro Asn Gly Ala Cys Val Pro Ala
                 800             805                 810

Phe Cys Asp Asp Gln Ser Pro Asp Ala Tyr Ser Ala Tyr Val Leu
                 815             820                 825

Ala Ser Leu Ala Gly Glu Glu Leu Gln Ala Val Glu Ser Ser Pro
                 830             835                 840
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112

```
Lys Phe Asn Pro Asn Ala Ile Gly Val Pro Gln Pro Tyr Leu Asn
            845                 850                     855

Lys Leu Asn Tyr Arg Arg Thr Asp His Glu Asp Pro Arg Val Lys
            860                 865                     870

Lys Thr Ala Phe Gln Ile Ser Met Ala Lys Pro Arg Pro Asn Ser
            875                 880                     885

Ala Glu Glu Ser Asn Gly Pro Ile Tyr Ala Phe Glu Asn Leu Arg
            890                 895                     900

Ala Cys Glu Glu Ala Pro Pro Ser Ala Ala His Phe Arg Phe Tyr
            905                 910                     915

Gln Ile Glu Gly Asp Arg Tyr Asp Tyr Asn Thr Val Pro Phe Asn
            920                 925                     930

Glu Asp Asp Pro Met Ser Trp Thr Glu Asp Tyr Leu Ala Trp Trp
            935                 940                     945

Pro Lys Pro Met Glu Phe Arg Ala Cys Tyr Ile Lys Val Lys Ile
            950                 955                     960

Val Gly Pro Leu Glu Val Asn Val Arg Ser Arg Asn Met Gly Gly
            965                 970                     975

Thr His Arg Arg Thr Val Gly Lys Leu Tyr Gly Ile Arg Asp Val
            980                 985                     990

Arg Ser Thr Arg Asp Arg Asp Gln Pro Asn Val Ser Ala Ala Cys
            995                 1000                    1005

Leu Glu Phe Lys Cys Ser Gly Met Leu Tyr Asp Gln Asp Arg Val
            1010                1015                    1020

Asp Arg Thr Leu Val Lys Val Ile Pro Gln Gly Ser Cys Arg Arg
            1025                1030                    1035

Ala Ser Val Asn Pro Met Leu His Glu Tyr Leu Val Asn His Leu
            1040                1045                    1050

Pro Leu Ala Val Asn Asn Asp Thr Ser Glu Tyr Thr Met Leu Ala
            1055                1060                    1065

Pro Leu Asp Pro Leu Gly His Asn Tyr Gly Ile Tyr Thr Val Thr
            1070                1075                    1080

Asp Gln Asp Pro Arg Thr Ala Lys Glu Ile Ala Leu Gly Arg Cys
            1085                1090                    1095

Phe Asp Gly Thr Ser Asp Gly Ser Ser Arg Ile Met Lys Ser Asn
            1100                1105                    1110

Val Gly Val Ala Leu Thr Phe Asn Cys Val Glu Arg Gln Val Gly
            1115                1120                    1125

Arg Gln Ser Ala Phe Gln Tyr Leu Gln Ser Thr Pro Ala Gln Ser
            1130                1135                    1140

Pro Ala Ala Gly Thr Val Gln Gly Arg Val Pro Ser Arg Arg Gln
            1145                1150                    1155
```

```
Gln Arg Ala Ser Arg Gly Gly Gln Arg Gln Gly Gly Val Val Ala
                1160                1165                1170

Ser Leu Arg Phe Pro Arg Val Ala Gln Gln Pro Leu Ile Asn
                1175                1180
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<210> 125
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 125
 ctggtgcctc aacagggagc ag 22

<210> 126
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 126
 ccattgtgca ggtcaggtca cag 23

<210> 127
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 127
 ctggagcaag tgctcagctg cctgtggtca gactggggtc 40

<210> 128
<211> 2819
<212> DNA
<213> Homo sapiens

<400> 128
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 ctacctaccc gtacgcatac atacatatgt gtatatatat gtaaactaga 200

 caaagatcgc agatcataaa gcaagctctg ctttagtttc caagaagatt 250

 acaaagaatt tagagatgta tttgtcaaga tccctgtcga ttcatgccct 300

 ttgggttacg gtgtcctcag tgatgcagcc ctaccctttg gtttggggac 350

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 gattacatgg cctgccagcc ggaatccacg gacatgacaa aatatctgaa 450
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114

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agtgaaactc gatcctccgg atattacctg tggagaccct cctgagacgt 500

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acccctgagc tggcacaccc ccctgagctg atgtttgatt ttgaaggaag 600

acatccctcc acattttggc agtctgccac ttggaaggag tatcccaagc 650

ctctccaggt taacatcact ctgtcttgga gcaaaaccat tgagctaaca 700

gacaacatag ttattacctt tgaatctggg cgtccagacc aaatgatcct 750

ggagaagtct ctcgattatg gacgaacatg gcagccctat cagtattatg 800

ccacagactg cttagatgct tttcacatgg atcctaaatc cgtgaaggat 850

ttatcacagc atacggtctt agaaatcatt tgcacagaag agtactcaac 900

agggtataca acaaatagca aaataatcca ctttgaaatc aaagacaggt 950

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ttgatattat cactgcaaat cacattgcca gctgcagagc atattgtgga 1850

ttggaaaggc tgcgacagcc ccccaaacag gaaagacaaa aaacaaacaa 1900

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gcattgtggg cataaggaaa tctgttacaa gctgccatat tggcctgctt 2050
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115

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ccctcgttgg ttgaaagatt tctttgtctg atgttagtga tgcacatgtg 2150

taacagcccc ctctaaaagc gcaagccagt catacccctg tatatcttag 2200

cagcactgag tccagtgcga gcacacaccc actatacaag agtggctata 2250

ggaaaaaaga aagtgtatct atccttttgt attcaaatga agttattttt 2300

cttgaactac tgtaatatgt agattttttg tattattgcc aatttgtgtt 2350

accagacaat ctgttaatgt atctaattcg aatcagcaaa gactgacatt 2400

ttattttgtc ctctttcgtt ctgttttgtt tcactgtgca gagatttctc 2450

tgtaagggca acgaacgtgc tggcatcaaa gaatatcagt ttacatatat 2500

aacaagtgta ataagattcc accaaaggac attctaaatg ttttcttgtt 2550

gctttaacac tggaagattt aaagaataaa aactcctgca taaacgattt 2600

caggaatttg tattgcaatt tcttaagatg aaaggaacag ccaccaagca 2650

gtttcacact cactttactg atttctgtgt ggactgagta cattcagctg 2700

acgaatttag ttcccaggaa gatggattga tgttcactag cttggacaac 2750

ttctgcaaaa tatgagacta tttccacttg ggaaaaatta caacagcaaa 2800

aaaaaaaaaa aaaaaaaaa 2819
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<210> 129
<211> 438
<212> PRT
<213> Homo sapiens

<400> 129

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 1               5                  10                  15

Val Ser Ser Val Met Gln Pro Tyr Pro Leu Val Trp Gly His Tyr
                20                  25                  30

Asp Leu Cys Lys Thr Gln Ile Tyr Thr Glu Glu Gly Lys Val Trp
                35                  40                  45

Asp Tyr Met Ala Cys Gln Pro Glu Ser Thr Asp Met Thr Lys Tyr
                50                  55                  60

Leu Lys Val Lys Leu Asp Pro Pro Asp Ile Thr Cys Gly Asp Pro
                65                  70                  75

Pro Glu Thr Phe Cys Ala Met Gly Asn Pro Tyr Met Cys Asn Asn
                80                  85                  90

Glu Cys Asp Ala Ser Thr Pro Glu Leu Ala His Pro Pro Glu Leu
                95                  100                 105

Met Phe Asp Phe Glu Gly Arg His Pro Ser Thr Phe Trp Gln Ser
                110                 115                 120

Ala Thr Trp Lys Glu Tyr Pro Lys Pro Leu Gln Val Asn Ile Thr
```

```
                125                   130                   135
Leu Ser Trp Ser Lys Thr Ile Glu Leu Thr Asp Asn Ile Val Ile
                140                   145                   150
Thr Phe Glu Ser Gly Arg Pro Asp Gln Met Ile Leu Glu Lys Ser
                155                   160                   165
Leu Asp Tyr Gly Arg Thr Trp Gln Pro Tyr Gln Tyr Tyr Ala Thr
                170                   175                   180
Asp Cys Leu Asp Ala Phe His Met Asp Pro Lys Ser Val Lys Asp
                185                   190                   195
Leu Ser Gln His Thr Val Leu Glu Ile Ile Cys Thr Glu Glu Tyr
                200                   205                   210
Ser Thr Gly Tyr Thr Thr Asn Ser Lys Ile Ile His Phe Glu Ile
                215                   220                   225
Lys Asp Arg Phe Ala Leu Phe Ala Gly Pro Arg Leu Arg Asn Met
                230                   235                   240
Ala Ser Leu Tyr Gly Gln Leu Asp Thr Thr Lys Lys Leu Arg Asp
                245                   250                   255
Phe Phe Thr Val Thr Asp Leu Arg Ile Arg Leu Leu Arg Pro Ala
                260                   265                   270
Val Gly Glu Ile Phe Val Asp Glu Leu His Leu Ala Arg Tyr Phe
                275                   280                   285
Tyr Ala Ile Ser Asp Ile Lys Val Arg Gly Arg Cys Lys Cys Asn
                290                   295                   300
Leu His Ala Thr Val Cys Val Tyr Asp Asn Ser Lys Leu Thr Cys
                305                   310                   315
Glu Cys Glu His Asn Thr Thr Gly Pro Asp Cys Gly Lys Cys Lys
                320                   325                   330
Lys Asn Tyr Gln Gly Arg Pro Trp Ser Pro Gly Ser Tyr Leu Pro
                335                   340                   345
Ile Pro Lys Gly Thr Ala Asn Thr Cys Ile Pro Ser Ile Ser Ser
                350                   355                   360
Ile Gly Thr Asn Val Cys Asp Asn Glu Leu Leu His Cys Gln Asn
                365                   370                   375
Gly Gly Thr Cys His Asn Asn Val Arg Cys Leu Cys Pro Ala Ala
                380                   385                   390
Tyr Thr Gly Ile Leu Cys Glu Lys Leu Arg Cys Glu Glu Ala Gly
                395                   400                   405
Ser Cys Gly Ser Asp Ser Gly Gln Gly Ala Pro Pro His Gly Thr
                410                   415                   420
Pro Ala Leu Leu Leu Leu Thr Thr Leu Leu Gly Thr Ala Ser Pro
                425                   430                   435
Leu Val Phe
```

117

<210> 130
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 130
 tcgattatgg acgaacatgg cagc 24

<210> 131
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 131
 ttctgagatc cctcatcctc 20

<210> 132
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 132
 aggttcaggg acagcaagtt tggg 24

<210> 133
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 133
 tttgctggac ctcggctacg gaattggctt ccctctacgg acagctggat 50

<210> 134
<211> 1493
<212> DNA
<213> Homo sapiens

<400> 134
 cccacgcgtc cgggtgacct gggccgagcc ctcccggtcg gctaagattg 50

 ctgaggaggc ggcgggtagc tggcaggcgc cgacttccga aggccgccgt 100

 ccgggcgagg tgtcctcatg acttctcttg tggaccatgt ccgtgatctt 150

 ttttgcctgc gtggtacggg taagggatgg actgcccctc tcagcctcta 200

 ctgattttta ccacacccaa gatttttttgg aatggaggag acggctcaag 250

 agtttagcct tgcgactggc ccagtatcca ggtcgaggtt ctgcagaagg 300

118

```
ttgtgacttt agtatacatt tttcttcttt cggggacgtg gcctgcatgg 350

ctatctgctc ctgccagtgt ccagcagcca tggccttctg cttcctggag 400

accctgtggt gggaattcac agcttcctat gacactacct gcattggcct 450

agcctccagg ccatacgctt ttcttgagtt tgacagcatc attcagaaag 500

tgaagtggca ttttaactat gtaagttcct ctcagatgga gtgcagcttg 550

gaaaaaattc aggaggagct caagttgcag cctccagcgg ttctcactct 600

ggaggacaca gatgtggcaa atggggtgat gaatggtcac acaccgatgc 650

acttggagcc tgctcctaat ttccgaatgg aaccagtgac agccctgggt 700

atcctctccc tcattctcaa catcatgtgt gctgccctga atctcattcg 750

aggagttcac cttgcagaac attctttaca ggatccaagg agctggttct 800

gctggttgga ccaaacctcg tgagccagcc acccctgacc caaatgagga 850

gagctctgat tctcccatcc gggagcagtg atgtcaaact tctgctgctg 900

gggaaatctc atcagcaggg agcctgtgga aaagggcatg tcagtgaaat 950

ctgggaatgg ctggattcgg aaacatctgc ccatgtgtat tgatggcaga 1000

gctgttgccc acaagcgcct tttatttagg gtaaaattaa caaatccatt 1050

ctattcctct gacccatgct tagtacatat gacctttaac ccttacattt 1100

atatgattct ggggttgctt cagaagtgtt atttcatgaa tcattcatat 1150

gatttgatcc cccaggattc tattttgttt aatgggcttt tctactaaaa 1200

gcataaaata ctgaggctga tttagtcagg gcaaaaccat ttactttaca 1250

tattcgtttt caatacttgc tgttcatgtt acacaagctt cttacggttt 1300

tcttgtaaca ataaatattt tgagtaaata atgggtacat tttaacaaac 1350

tcagtagtac aacctaaact tgtataaaag tgtgtaaaaa tgtatagcca 1400

tttatatcct atgtataaat taaatgaggt ggcttcagaa atggcagaat 1450

aaatctaaag tgtttattaa aaaaaaaaaa aaaaaaaaaa aag 1493
```

<210> 135
<211> 228
<212> PRT
<213> Homo sapiens

<400> 135

```
Met Ser Val Ile Phe Phe Ala Cys Val Val Arg Val Arg Asp Gly
1               5                   10                  15

Leu Pro Leu Ser Ala Ser Thr Asp Phe Tyr His Thr Gln Asp Phe
            20                  25                      30

Leu Glu Trp Arg Arg Arg Leu Lys Ser Leu Ala Leu Arg Leu Ala
            35                  40                      45
```

119

```
Gln Tyr Pro Gly Arg Gly Ser Ala Glu Gly Cys Asp Phe Ser Ile
                50                  55                  60

His Phe Ser Ser Phe Gly Asp Val Ala Cys Met Ala Ile Cys Ser
                65                  70                  75

Cys Gln Cys Pro Ala Ala Met Ala Phe Cys Phe Leu Glu Thr Leu
                80                  85                  90

Trp Trp Glu Phe Thr Ala Ser Tyr Asp Thr Thr Cys Ile Gly Leu
                95                 100                 105

Ala Ser Arg Pro Tyr Ala Phe Leu Glu Phe Asp Ser Ile Ile Gln
               110                 115                 120

Lys Val Lys Trp His Phe Asn Tyr Val Ser Ser Ser Gln Met Glu
               125                 130                 135

Cys Ser Leu Glu Lys Ile Gln Glu Glu Leu Lys Leu Gln Pro Pro
               140                 145                 150

Ala Val Leu Thr Leu Glu Asp Thr Asp Val Ala Asn Gly Val Met
               155                 160                 165

Asn Gly His Thr Pro Met His Leu Glu Pro Ala Pro Asn Phe Arg
               170                 175                 180

Met Glu Pro Val Thr Ala Leu Gly Ile Leu Ser Leu Ile Leu Asn
               185                 190                 195

Ile Met Cys Ala Ala Leu Asn Leu Ile Arg Gly Val His Leu Ala
               200                 205                 210

Glu His Ser Leu Gln Asp Pro Arg Ser Trp Phe Cys Trp Leu Asp
               215                 220                 225

Gln Thr Ser
```

<210> 136
<211> 239
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 39, 61, 143, 209
<223> unknown base

<400> 136
```
 tgcttcctgg agaccctgtg gtgggaattc acagcttcnt atgacactac 50

 ctgcattggc ntagcctcca ggccatacgc ttttcttgag tttgacagca 100

 tcattcagaa agtgaagtgg cattttaact atgtaagttc ctntcagatg 150

 gagtgcagct tggaaaaaat tcaggaggag ctcaagttgc agcctccagc 200

 ggttctcant atggaggaca cagatgtggc aaatggggt 239
```
<210> 137
<211> 2300
<212> DNA

<210> Homo sapiens

<400> 137
```
ctcagcggcg cttcctcgta gcgagcctag tggcgggtgt ttgcattgaa   50
acgtgagcgc gacccgacct taaagagtgg ggagcaaagg gaggacagag  100
ccctttaaaa cgaggcgggt ggtgcctgcc cctttaaggg cggggcgtcc  150
ggacgactgt atctgagccc cagactgccc cgagtttctg tcgcaggctg  200
cgaggaaagg cccctaggct gggtctgggt gcttggcggc ggcggcttcc  250
tccccgctcg tcctccccgg gcccagaggc acctcggctt cagtcatgct  300
gagcagagta tggaagcacc tgactacgaa gtgctatccg tgcgagaaca  350
gctattccac gagaggatcc gcgagtgtat tatatcaaca cttctgtttg  400
caacactgta catcctctgc cacatcttcc tgacccgctt caagaagcct  450
gctgagttca ccacagtgga tgatgaagat gccaccgtca acaagattgc  500
gctcgagctg tgcaccttta ccctggcaat tgccctgggt gctgtcctgc  550
tcctgccctt ctccatcatc agcaatgagg tgctgctctc cctgcctcgg  600
aactactaca tccagtggct caacggctcc ctcatccatg gcctctggaa  650
ccttgttttt ctcttcccca acctgtccct catcttcctc atgccctttg  700
catatttctt cactgagtct gagggctttg ctggctccag aaagggtgtc  750
ctgggccggg tctatgagac agtggtgatg ttgatgctcc tcactctgct  800
ggtgctaggt atggtgtggg tggcatcagc cattgtggac aagaacaagg  850
ccaacagaga gtcactctat gacttttggg agtactatct cccctacctc  900
tactcatgca tctccttcct tggggttctg ctgctcctgg tgtgtactcc  950
actgggtctc gcccgcatgt tctccgtcac tgggaagctg ctagtcaagc 1000
cccggctgct ggaagacctg gaggagcagc tgtactgctc agcctttgag 1050
gaggcagccc tgacccgcag gatctgtaat cctacttcct gctggctgcc 1100
tttagacatg gagctgctac acagacaggt cctggctctg cagacacaga 1150
gggtcctgct ggagaagagg cggaaggctt cagcctggca acggaacctg 1200
ggctaccccc tggctatgct gtgcttgctg gtgctgacgg gcctgtctgt 1250
gctcattgtg gccatccaca tcctggagct gctcatcgat gaggctgcca 1300
tgccccgagg catgcagggg acctccttag gccaggtctc cttctccaag 1350
ctgggctcct ttggtgccgt cattcaggtt gtactcatct tttacctaat 1400
ggtgtcctca gttgtgggct tctatagctc tccactcttc cggagcctgc 1450
ggcccagatg gcacgacact gccatgacgc agataattgg gaactgtgtc 1500
```

121

```
tgtctcctgg tcctaagctc agcacttcct gtcttctctc gaaccctggg 1550

gctcactcgc tttgacctgc tgggtgactt tggacgcttc aactggctgg 1600

gcaatttcta cattgtgttc ctctacaacg cagcctttgc aggcctcacc 1650

acactctgtc tggtgaagac cttcactgca gctgtgcggg cagagctgat 1700

ccgggccttt gggctggaca gactgccgct gcccgtctcc ggtttccccc 1750

aggcatctag gaagacccag caccagtgac ctccagctgg gggtgggaag 1800

gaaaaaactg gacactgcca tctgctgcct aggcctggag ggaagcccaa 1850

ggctacttgg acctcaggac ctggaatctg agagggtggg tggcagaggg 1900

gagcagagcc atctgcacta ttgcataatc tgagccagag tttgggacca 1950

ggacctcctg cttttccata cttaactgtg gcctcagcat ggggtagggc 2000

tgggtgactg ggtctagccc ctgatcccaa atctgtttac acatcaatct 2050

gcctcactgc tgttctgggc catccccata gccatgttta catgatttga 2100

tgtgcaatag ggtgggtag gggcagggaa aggactgggc cagggcaggc 2150

tcgggagata gattgtctcc cttgcctctg gcccagcaga gcctaagcac 2200

tgtgctatcc tggaggggct ttggaccacc tgaaagacca aggggatagg 2250

gaggaggagg cttcagccat cagcaataaa gttgatccca gggaaaaaaa 2300
```

<210> 138
<211> 489
<212> PRT
<213> Homo sapiens

<400> 138
```
Met Glu Ala Pro Asp Tyr Glu Val Leu Ser Val Arg Glu Gln Leu
 1               5                  10                  15

Phe His Glu Arg Ile Arg Glu Cys Ile Ile Ser Thr Leu Leu Phe
                20                  25                  30

Ala Thr Leu Tyr Ile Leu Cys His Ile Phe Leu Thr Arg Phe Lys
                35                  40                  45

Lys Pro Ala Glu Phe Thr Thr Val Asp Asp Glu Asp Ala Thr Val
                50                  55                  60

Asn Lys Ile Ala Leu Glu Leu Cys Thr Phe Thr Leu Ala Ile Ala
                65                  70                  75

Leu Gly Ala Val Leu Leu Leu Pro Phe Ser Ile Ile Ser Asn Glu
                80                  85                  90

Val Leu Leu Ser Leu Pro Arg Asn Tyr Tyr Ile Gln Trp Leu Asn
                95                  100                 105

Gly Ser Leu Ile His Gly Leu Trp Asn Leu Val Phe Leu Phe Pro
                110                 115                 120

Asn Leu Ser Leu Ile Phe Leu Met Pro Phe Ala Tyr Phe Phe Thr
```

122

```
                125              130              135
Glu Ser Glu Gly Phe Ala Gly Ser Arg Lys Gly Val Leu Gly Arg
                140              145              150
Val Tyr Glu Thr Val Val Met Leu Met Leu Leu Thr Leu Leu Val
                155              160              165
Leu Gly Met Val Trp Val Ala Ser Ala Ile Val Asp Lys Asn Lys
                170              175              180
Ala Asn Arg Glu Ser Leu Tyr Asp Phe Trp Glu Tyr Tyr Leu Pro
                185              190              195
Tyr Leu Tyr Ser Cys Ile Ser Phe Leu Gly Val Leu Leu Leu Leu
                200              205              210
Val Cys Thr Pro Leu Gly Leu Ala Arg Met Phe Ser Val Thr Gly
                215              220              225
Lys Leu Leu Val Lys Pro Arg Leu Leu Glu Asp Leu Glu Glu Gln
                230              235              240
Leu Tyr Cys Ser Ala Phe Glu Glu Ala Ala Leu Thr Arg Arg Ile
                245              250              255
Cys Asn Pro Thr Ser Cys Trp Leu Pro Leu Asp Met Glu Leu Leu
                260              265              270
His Arg Gln Val Leu Ala Leu Gln Thr Gln Arg Val Leu Leu Glu
                275              280              285
Lys Arg Arg Lys Ala Ser Ala Trp Gln Arg Asn Leu Gly Tyr Pro
                290              295              300
Leu Ala Met Leu Cys Leu Leu Val Leu Thr Gly Leu Ser Val Leu
                305              310              315
Ile Val Ala Ile His Ile Leu Glu Leu Leu Ile Asp Glu Ala Ala
                320              325              330
Met Pro Arg Gly Met Gln Gly Thr Ser Leu Gly Gln Val Ser Phe
                335              340              345
Ser Lys Leu Gly Ser Phe Gly Ala Val Ile Gln Val Val Leu Ile
                350              355              360
Phe Tyr Leu Met Val Ser Ser Val Val Gly Phe Tyr Ser Ser Pro
                365              370              375
Leu Phe Arg Ser Leu Arg Pro Arg Trp His Asp Thr Ala Met Thr
                380              385              390
Gln Ile Ile Gly Asn Cys Val Cys Leu Leu Val Leu Ser Ser Ala
                395              400              405
Leu Pro Val Phe Ser Arg Thr Leu Gly Leu Thr Arg Phe Asp Leu
                410              415              420
Leu Gly Asp Phe Gly Arg Phe Asn Trp Leu Gly Asn Phe Tyr Ile
                425              430              435
Val Phe Leu Tyr Asn Ala Ala Phe Ala Gly Leu Thr Thr Leu Cys
```

123

```
              440                 445                 450
Leu Val Lys Thr Phe Thr Ala Ala Val Arg Ala Glu Leu Ile Arg
                455                 460                 465
Ala Phe Gly Leu Asp Arg Leu Pro Leu Pro Val Ser Gly Phe Pro
                470                 475                 480
Gln Ala Ser Arg Lys Thr Gln His Gln
                485
```

<210> 139
<211> 294
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 53, 57
<223> unknown base

<400> 139

```
ggctgccgag ggaaggcccc ttgggttggt cttggttgct tggcggcggc 50

ggnttcntcc ccgctcgtcc tccccgggcc cagaggcacc tcggcttcag 100

tcatgctgag cagagtatgg aagcacctga ctacgaagtg ctatccgtgc 150

gagaacagct attccacgag aggatccgcg agtgtattat atcaacactt 200

ctgtttgcaa cactgtacat cctctgccac atcttcctga cccgcttcaa 250

gaagcctgct gagttcacca cagtggatga tgaagatgcc accg 294
```

<210> 140
<211> 526
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 197, 349
<223> unknown base

<400> 140

```
gaccgacctt aaagagtggg agcaaaggga ggacagagcc ttttaaaacg 50

aggcggtggt gcctgccctt taagggcggg gcgtccggac gactgtatct 100

gagccccaga ctgccccgag tttctgtcgc aggctgcgag gaaaggcccc 150

taggctgggt ctggtgcttg gcggcggcgg cttcctcccc gttgtcntcc 200

ccgggcccag aggcacctcg gcttcagtca tgctgagcag agtatggaag 250

cacctgacta cgaagtgcta tccgtgcgag aacagctatt ccacgagagg 300

atccgcgagt gtattatatc aacacttctg tttgcaacac tgtacatcnt 350

ctgccacatc ttcctgaccc gcttcaagaa gcctgctgag ttcaccacag 400

tggatgatga agatgccacc gtcaacaaga ttgcgctcga gctgtgcacc 450
```

124

```
tttaccctgg caattgccct gggtgctgtc ctgctcctgc ccttctccat 500

catcagcaat gaggtgctgc actccc 526
```

<210> 141
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 141
```
gactgtatct gagccccaga ctgc 24
```

<210> 142
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 142
```
tcagcaatga ggtgctgctc 20
```

<210> 143
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 143
```
tgaggaagat gagggacagg ttgg 24
```

<210> 144
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 144
```
tatggaagca cctgactacg aagtgctatc cgtgcgagaa cagctattcc 50
```

<210> 145
<211> 685
<212> DNA
<213> Homo sapiens

<400> 145
```
gatgtgctcc ttggagctgg tgtgcagtgt cctgactgta agatcaagtc 50

caaacctgtt ttggaattga ggaaacttct cttttgatct cagcccttgg 100

tggtccaggt cttcatgctg ctgtgggtga tattactggt cctggctcct 150

gtcagtggac agtttgcaag gacacccagg cccattattt tcctccagcc 200

tccatggacc acagtcttcc aaggagagag agtgaccctc acttgcaagg 250
```

```
gatttcgctt ctactcacca cagaaaacaa aatggtacca tcggtacctt 300

gggaaagaaa tactaagaga aaccccagac aatatccttg aggttcagga 350

atctggagag tacagatgcc aggcccaggg ctcccctctc agtagccctg 400

tgcacttgga tttttcttca gagatgggat ttcctcatgc tgcccaggct 450

aatgttgaac tcctgggctc aagtgatctg ctcacctagg cctctcaaag 500

cgctgggatt acagcttcgc tgatcctgca agctccactt tctgtgtttg 550

aaggagactc tgtggttctg aggtgccggg caaaggcgga agtaacactg 600

aataatacta tttacaagaa tgataatgtc ctggcattcc ttaataaaag 650

aactgacttc caaaaaaaaa aaaaaaaaaa aaaaa 685
```

<210> 146
<211> 124
<212> PRT
<213> Homo sapiens

<400> 146

```
Met Leu Leu Trp Val Ile Leu Leu Val Leu Ala Pro Val Ser Gly
 1               5                  10                  15

Gln Phe Ala Arg Thr Pro Arg Pro Ile Ile Phe Leu Gln Pro Pro
                20                  25                  30

Trp Thr Thr Val Phe Gln Gly Glu Arg Val Thr Leu Thr Cys Lys
                35                  40                  45

Gly Phe Arg Phe Tyr Ser Pro Gln Lys Thr Lys Trp Tyr His Arg
                50                  55                  60

Tyr Leu Gly Lys Glu Ile Leu Arg Glu Thr Pro Asp Asn Ile Leu
                65                  70                  75

Glu Val Gln Glu Ser Gly Glu Tyr Arg Cys Gln Ala Gln Gly Ser
                80                  85                  90

Pro Leu Ser Ser Pro Val His Leu Asp Phe Ser Ser Glu Met Gly
                95                  100                 105

Phe Pro His Ala Ala Gln Ala Asn Val Glu Leu Leu Gly Ser Ser
                110                 115                 120

Asp Leu Leu Thr
```

<210> 147
<211> 1621
<212> DNA
<213> Homo sapiens

<400> 147

```
cagaagaggg ggctagctag ctgtctctgc ggaccaggga gaccccccgcg 50

ccccccccggt gtgaggcggc ctcacagggc cgggtgggct ggcgagccga 100

cgcggcggcg gaggaggctg tgaggagtgt gtggaacagg acccgggaca 150
```

126

```
gaggaaccat ggctccgcag aacctgagca cctttttgcct gttgctgcta 200

tacctcatcg gggcggtgat tgccggacga gatttctata agatcttggg 250

ggtgcctcga agtgcctcta taaaggatat taaaaaggcc tataggaaac 300

tagccctgca gcttcatccc gaccggaacc ctgatgatcc acaagcccag 350

gagaaattcc aggatctggg tgctgcttat gaggttctgt cagatagtga 400

gaaacggaaa cagtacgata cttatggtga agaaggatta aaagatggtc 450

atcagagctc ccatggagac attttttcac acttcttggg ggattttggt 500

ttcatgtttg gaggaacccc tcgtcagcaa gacagaaata ttccaagagg 550

aagtgatatt attgtagatc tagaagtcac tttggaagaa gtatatgcag 600

gaaattttgt ggaagtagtt agaaacaaac ctgtggcaag gcaggctcct 650

ggcaaacgga agtgcaattg tcggcaagag atgcggacca cccagctggg 700

ccctgggcgc ttccaaatga cccaggaggt ggtctgcgac gaatgcccta 750

atgtcaaact agtgaatgaa gaacgaacgc tggaagtaga aatagagcct 800

ggggtgagag acggcatgga gtaccccttt attggagaag gtgagcctca 850

cgtggatggg gagcctggag atttacggtt ccgaatcaaa gttgtcaagc 900

acccaatatt tgaaaggaga ggagatgatt tgtacacaaa tgtgacaatc 950

tcattagttg agtcactggt tggctttgag atggatatta ctcacttgga 1000

tggtcacaag gtacatattt cccgggataa gatcaccagg ccaggagcga 1050

agctatggaa gaaaggggaa gggctcccca actttgacaa caacaatatc 1100

aagggctctt tgataatcac ttttgatgtg gattttccaa aagaacagtt 1150

aacagaggaa gcgagagaag gtatcaaaca gctactgaaa caagggtcag 1200

tgcagaaggt atacaatgga ctgcaaggat attgagagtg aataaaattg 1250

gactttgttt aaaataagtg aataagcgat atttattatc tgcaaggttt 1300

ttttgtgtgt gtttttgttt ttattttcaa tatgcaagtt aggcttaatt 1350

tttttatcta atgatcatca tgaaatgaat aagagggctt aagaatttgt 1400

ccatttgcat tcggaaaaga atgaccagca aaaggtttac taatacctct 1450

ccctttgggg atttaatgtc tggtgctgcc gcctgagttt caagaattaa 1500

agctgcaaga ggactccagg agcaaaagaa acacaatata gagggttgga 1550

gttgttagca atttcattca aaatgccaac tggagaagtc tgttttttaaa 1600

tacattttgt tgttattttt a 1621
```

<210> 148
<211> 358
<212> PRT

127

<213> Homo sapiens

<400> 148
```
Met Ala Pro Gln Asn Leu Ser Thr Phe Cys Leu Leu Leu Leu Tyr
 1               5                  10                  15

Leu Ile Gly Ala Val Ile Ala Gly Arg Asp Phe Tyr Lys Ile Leu
                20                  25                  30

Gly Val Pro Arg Ser Ala Ser Ile Lys Asp Ile Lys Lys Ala Tyr
                35                  40                  45

Arg Lys Leu Ala Leu Gln Leu His Pro Asp Arg Asn Pro Asp Asp
                50                  55                  60

Pro Gln Ala Gln Glu Lys Phe Gln Asp Leu Gly Ala Ala Tyr Glu
                65                  70                  75

Val Leu Ser Asp Ser Glu Lys Arg Lys Gln Tyr Asp Thr Tyr Gly
                80                  85                  90

Glu Glu Gly Leu Lys Asp Gly His Gln Ser Ser His Gly Asp Ile
                95                 100                 105

Phe Ser His Phe Phe Gly Asp Phe Gly Phe Met Phe Gly Gly Thr
               110                 115                 120

Pro Arg Gln Gln Asp Arg Asn Ile Pro Arg Gly Ser Asp Ile Ile
               125                 130                 135

Val Asp Leu Glu Val Thr Leu Glu Glu Val Tyr Ala Gly Asn Phe
               140                 145                 150

Val Glu Val Val Arg Asn Lys Pro Val Ala Arg Gln Ala Pro Gly
               155                 160                 165

Lys Arg Lys Cys Asn Cys Arg Gln Glu Met Arg Thr Thr Gln Leu
               170                 175                 180

Gly Pro Gly Arg Phe Gln Met Thr Gln Glu Val Val Cys Asp Glu
               185                 190                 195

Cys Pro Asn Val Lys Leu Val Asn Glu Glu Arg Thr Leu Glu Val
               200                 205                 210

Glu Ile Glu Pro Gly Val Arg Asp Gly Met Glu Tyr Pro Phe Ile
               215                 220                 225

Gly Glu Gly Glu Pro His Val Asp Gly Glu Pro Gly Asp Leu Arg
               230                 235                 240

Phe Arg Ile Lys Val Val Lys His Pro Ile Phe Glu Arg Arg Gly
               245                 250                 255

Asp Asp Leu Tyr Thr Asn Val Thr Ile Ser Leu Val Glu Ser Leu
               260                 265                 270

Val Gly Phe Glu Met Asp Ile Thr His Leu Asp Gly His Lys Val
               275                 280                 285

His Ile Ser Arg Asp Lys Ile Thr Arg Pro Gly Ala Lys Leu Trp
               290                 295                 300
```

128

```
Lys Lys Gly Glu Gly Leu Pro Asn Phe Asp Asn Asn Asn Ile Lys
                305             310                 315

Gly Ser Leu Ile Ile Thr Phe Asp Val Asp Phe Pro Lys Glu Gln
                320             325                 330

Leu Thr Glu Glu Ala Arg Glu Gly Ile Lys Gln Leu Leu Lys Gln
                335             340                 345

Gly Ser Val Gln Lys Val Tyr Asn Gly Leu Gln Gly Tyr
                350             355
```

<210> 149
<211> 509
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 34, 52, 134, 142, 155, 158, 196, 217, 228, 272, 347, 410, 445,
      482
<223> unknown base

<400> 149
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 tgggaccagg gaaccccggg cccccggtg gagngcctaa caggccggtg 50

 gntgcgaccg aagcggcggg cggaggaggt tttgaggatt tttggaacag 100

 gacccggaca gaggaaccat ggttccgcag aacntgagca cnttttgcct 150

 gttgntgnta tacttcatcg gggcggtgat tgccggacga gatttntata 200

 agattttggg gtgcctngaa gtgccttnta taaaggatat taaaaaggcc 250

 tataggaaac tagccctgca gntttatccc gaccggaacc ctgatgatcc 300

 acaagcccag gagaaattcc aggatttggg tgctgcttat gaggttntgt 350

 cagatagtga gaaacggaaa cagtacgata attatggtga agaaggatta 400

 aaagatggtn atcagagctc ccatggagac atttttttcac acttntttgg 450

 ggattttggt ttcatgtttg gaggaacccc tngtcagcaa gacagaaata 500

 ttccaagag 509
```

<210> 150
<211> 1532
<212> DNA
<213> Homo sapiens

<400> 150
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 ggcacgaggc ggcggggcag tcgcgggatg cgcccgggag ccacagcctg 50

 aggccctcag gtctctgcag gtgtcgtgga ggaacctagc acctgccatc 100

 ctcttcccca atttgccact tccagcagct ttagcccatg aggaggatgt 150

 gaccgggact gagtcaggag ccctctggaa gcatggagac tgtggtgatt 200

 gttgccatag gtgtgctggc caccatcttt ctggcttcgt ttgcagcctt 250

 ggtgctggtt tgcaggcagc gctactgccg gccgcgagac ctgctgcagc 300
```

129

```
gctatgattc taagcccatt gtggacctca ttggtgccat ggagacccag 350

tctgagccct ctgagttaga actggacgat gtcgttatca ccaacccca 400

cattgaggcc attctggaga atgaagactg gatcgaagat gcctcgggtc 450

tcatgtccca ctgcattgcc atcttgaaga tttgtcacac tctgacagag 500

aagcttgttg ccatgacaat gggctctggg gccaagatga agacttcagc 550

cagtgtcagc gacatcattg tggtggccaa gcggatcagc cccagggtgg 600

atgatgttgt gaagtcgatg taccctccgt tggaccccaa actcctggac 650

gcacggacga ctgccctgct cctgtctgtc agtcacctgg tgctggtgac 700

aaggaatgcc tgccatctga cgggaggcct ggactggatt gaccagtctc 750

tgtcggctgc tgaggagcat ttggaagtcc ttcgagaagc agccctagct 800

tctgagccag ataaaggcct cccaggccct gaaggcttcc tgcaggagca 850

gtctgcaatt tagtgcctac aggccagcag ctagccatga aggcccctgc 900

cgccatccct ggatggctca gcttagcctt ctactttttc ctatagagtt 950

agttgttctc cacggctgga gagttcagct gtgtgtgcat agtaaagcag 1000

gagatccccg tcagtttatg cctcttttgc agttgcaaac tgtggctggt 1050

gagtggcagt ctaatactac agttagggga gatgccattc actctctgca 1100

agaggagtat tgaaaactgg tggactgtca gctttattta gctcacctag 1150

tgttttcaag aaaattgagc caccgtctaa gaaatcaaga ggtttcacat 1200

taaaattaga atttctggcc tctctcgatc ggtcagaatg tgtggcaatt 1250

ctgatctgca ttttcagaag aggacaatca attgaaacta agtaggggtt 1300

tcttcttttg gcaagacttg tactctctca cctggcctgt ttcatttatt 1350

tgtattatct gcctggtccc tgaggcgtct gggtctctcc tctcccttgc 1400

aggtttgggt ttgaagctga ggaactacaa agttgatgat ttctttttta 1450

tctttatgcc tgcaatttta cctagctacc actaggtgga tagtaaattt 1500

atacttatgt ttccctcaaa aaaaaaaaa aa 1532
```

<210> 151
<211> 226
<212> PRT
<213> Homo sapiens

<400> 151
```
Met Glu Thr Val Val Ile Val Ala Ile Gly Val Leu Ala Thr Ile
 1               5                  10                  15

Phe Leu Ala Ser Phe Ala Ala Leu Val Leu Val Cys Arg Gln Arg
                20                  25                  30

Tyr Cys Arg Pro Arg Asp Leu Leu Gln Arg Tyr Asp Ser Lys Pro
```

130

```
Ile Val Asp Leu Ile Gly Ala Met Glu Thr Gln Ser Glu Pro Ser
                    50                  55                  60
Glu Leu Glu Leu Asp Asp Val Val Ile Thr Asn Pro His Ile Glu
                    65                  70                  75
Ala Ile Leu Glu Asn Glu Asp Trp Ile Glu Asp Ala Ser Gly Leu
                    80                  85                  90
Met Ser His Cys Ile Ala Ile Leu Lys Ile Cys His Thr Leu Thr
                    95                  100                 105
Glu Lys Leu Val Ala Met Thr Met Gly Ser Gly Ala Lys Met Lys
                    110                 115                 120
Thr Ser Ala Ser Val Ser Asp Ile Ile Val Val Ala Lys Arg Ile
                    125                 130                 135
Ser Pro Arg Val Asp Asp Val Val Lys Ser Met Tyr Pro Pro Leu
                    140                 145                 150
Asp Pro Lys Leu Leu Asp Ala Arg Thr Thr Ala Leu Leu Leu Ser
                    155                 160                 165
Val Ser His Leu Val Leu Val Thr Arg Asn Ala Cys His Leu Thr
                    170                 175                 180
Gly Gly Leu Asp Trp Ile Asp Gln Ser Leu Ser Ala Ala Glu Leu
                    185                 190                 195
His Leu Glu Val Leu Arg Glu Ala Ala Leu Ala Ser Glu Pro Asp
                    200                 205                 210
Lys Gly Leu Pro Gly Pro Glu Gly Phe Leu Gln Glu Gln Ser Ala
                    215                 220                 225
Ile
```

```
<400> 152
 gcttcatttc tcccgactca gcttcccacc ctgggctttc cgaggtgctt 50

 tcgccgctgt ccccaccact gcagccatga tctccttaac ggacacgcag 100

 aaaattggaa tgggattaac aggatttgga gtgttttttcc tgttctttgg 150

 aatgattctc tttttttgaca aagcactact ggctattgga aatgtttttat 200

 ttgtagccgg cttggctttt gtaattggtt tagaaagaac attcagattc 250

 ttcttccaaa aacataaaat gaaagctaca ggttttttttc tgggtggtgt 300
```

```
atttgtagtc cttattggtt ggcctttgat aggcatgatc ttcgaaattt 350

atggattttt tctcttgttc aggggcttct ttcctgtcgt tgttggcttt 400

attagaagag tgccagtcct tggatccctc ctaaatttac ctggaattag 450

atcatttgta gataaagttg gagaaagcaa caatatggta taacaacaag 500

tgaatttgaa gactcattta aaatattgtg ttatttataa agtcatttga 550

agaatattca gcacaaaatt aaattacatg aaatagcttg taatgttctt 600

tacaggagtt taaaacgtat agcctacaaa gtaccagcag caaattagca 650

aagaagcagt gaaaacaggc ttctactcaa gtgaactaag aagaagtcag 700

caagcaaact gagagaggtg aaatccatgt taatgatgct taagaaactc 750

ttgaaggcta tttgtgttgt ttttccacaa tgtgcgaaac tcagccatcc 800

ttagagaact gtggtgcctg tttctttttct ttttattttg aaggctcagg 850

agcatccata ggcatttgct ttttagaagt gtccactgca atggcaaaaa 900

tatttccagt tgcactgtat ctctggaagt gatgcatgaa ttcgattgga 950

ttgtgtcatt ttaaagtatt aaaaccaagg aaaccccaat tttgatgtat 1000

ggattacttt tttttgngcn cagggcc 1027
```

<210> 153
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> N-myristoylation Sites
<222> 11-16, 51-56 and 116-121
<223> N-myristoylation Sites.

<220>
<221> Transmembrane domains
<222> 12-30, 33-52, 69-89 and 93-109
<223> Transmembrane domains

<220>
<221> Aminoacyl-transfer RNA Synthetases.
<222> 49-59
<223> Aminoacyl-transfer RNA synthetases class-II protein.

<400> 153
```
Met Ile Ser Leu Thr Asp Thr Gln Lys Ile Gly Met Gly Leu Thr
 1               5                  10                      15

Gly Phe Gly Val Phe Phe Leu Phe Phe Gly Met Ile Leu Phe Phe
                20                  25                      30

Asp Lys Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly
                35                  40                      45

Leu Ala Phe Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe Phe
                50                  55                      60
```

132

```
Gln Lys His Lys Met Lys Ala Thr Gly Phe Phe Leu Gly Gly Val
                65                  70                      75

Phe Val Val Leu Ile Gly Trp Pro Leu Ile Gly Met Ile Phe Glu
                80                  85                      90

Ile Tyr Gly Phe Phe Leu Leu Phe Arg Gly Phe Phe Pro Val Val
                95                  100                     105

Val Gly Phe Ile Arg Arg Val Pro Val Leu Gly Ser Leu Leu Asn
                110                 115                     120

Leu Pro Gly Ile Arg Ser Phe Val Asp Lys Val Gly Glu Ser Asn
                125                 130                     135

Asn Met Val
```

```
<210> 154
<211> 405
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 66
<223> unknown base

<400> 154
 gaagacgtgg cggctctcgc ctgggctgtt tcccggcttc atttctcccg 50

 actcagcttc ccaccntggg ctttccgagg tgctttcgcc gctgtcccca 100

 ccactgcagc catgatctcc ttaacggaca cgcagaaaat tggaatggga 150

 ttaaccggat ttggagtgtt tttcctgttc tttggaatga ttctcttttt 200

 tgacaaagca ctactggcta ttggaaatgt tttatttgta gccggcttgg 250

 cttttgtaat tggtttagaa agaacattca gattcttctt ccaaaaacat 300

 aaaatgaaag ctacaggttt ttttctgggt ggtgtatttg tagtccttat 350

 tggttggcct ttgataggca tgatcttcga aatttatgga tttttttctct 400

 tgttc 405

<210> 155
<211> 1781
<212> DNA
<213> Homo sapiens

<400> 155
 ggcacgaggc tgaacccagc cggctccatc tcagcttctg gtttctaagt 50

 ccatgtgcca aaggctgcca ggaaggagac gccttcctga gtcctggatc 100

 tttcttcctt ctggaaatct ttgactgtgg gtagttattt atttctgaat 150

 aagagcgtcc acgcatcatg gacctcgcgg gactgctgaa gtctcagttc 200

 ctgtgccacc tggtcttctg ctacgtcttt attgcctcag ggctaatcat 250
```

```
caacaccatt cagctcttca ctctcctcct ctggcccatt aacaagcagc 300

tcttccggaa gatcaactgc agactgtcct attgcatctc aagccagctg 350

gtgatgctgc tggagtggtg gtcgggcacg gaatgcacca tcttcacgga 400

cccgcgcgcc tacctcaagt atgggaagga aaatgccatc gtggttctca 450

accacaagtt tgaaattgac tttctgtgtg gctggagcct gtccgaacgc 500

tttgggctgt tagggggctc caaggtcctg gccaagaaag agctggccta 550

tgtcccaatt atcggctgga tgtggtactt caccgagatg gtcttctgtt 600

cgcgcaagtg ggagcaggat cgcaagacgg ttgccaccag tttgcagcac 650

ctccgggact accccgagaa gtatttttc ctgattcact gtgagggcac 700

acggttcacg gagaagaagc atgagatcag catgcaggtg gcccgggcca 750

aggggctgcc tcgcctcaag catcacctgt tgccacgaac caagggcttc 800

gccatcaccg tgaggagctt gagaaatgta gtttcagctg tatatgactg 850

tacactcaat ttcagaaata atgaaaatcc aacactgctg ggagtcctaa 900

acggaaagaa ataccatgca gatttgtatg ttaggaggat cccactggaa 950

gacatccctg aagacgatga cgagtgctcg gcctggctgc acaagctcta 1000

ccaggagaag gatgcctttc aggaggagta ctacaggacg ggcaccttcc 1050

cagagacgcc catggtgccc ccccggcggc cctggaccct cgtgaactgg 1100

ctgtttttggg cctcgctggt gctctaccct ttcttccagt tcctggtcag 1150

catgatcagg agcgggtctt ccctgacgct ggccagcttc atcctcgtct 1200

tctttgtggc ctccgtggga gttcgatgga tgattggtgt gacggaaatt 1250

gacaagggct ctgcctacgg caactctgac agcaagcaga aactgaatga 1300

ctgactcagg gaggtgtcac catccgaagg gaaccttggg gaactggtgg 1350

cctctgcata tcctccttag tgggacacgg tgacaaaggc tgggtgagcc 1400

cctgctgggc acggcggaag tcacgacctc tccagccagg gagtctggtc 1450

tcaaggccgg atgggaagga agatgttttg taatctttt ttccccatgt 1500

gctttagtgg gctttggttt tcttttgtg cgagtgtgtg tgagaatggc 1550

tgtgtggtga gtgtgaactt tgttctgtga tcatagaaag ggtatttag 1600

gctgcaggg agggcagggc tggggaccga aggggacaag ttccccttc 1650

atcctttggt gctgagtttt ctgtaaccct tggttgccag agataaagtg 1700

aaaagtgctt taggtgagat gactaaatta tgcctccaag aaaaaaaaat 1750

taaagtgctt ttctgggtca aaaaaaaaa a 1781

<210> 156
```

134

<211> 378
<212> PRT
<213> Homo sapiens

<400> 156
```
Met Asp Leu Ala Gly Leu Leu Lys Ser Gln Phe Leu Cys His Leu
 1               5                   10                  15

Val Phe Cys Tyr Val Phe Ile Ala Ser Gly Leu Ile Ile Asn Thr
                20                  25                  30

Ile Gln Leu Phe Thr Leu Leu Leu Trp Pro Ile Asn Lys Gln Leu
                35                  40                  45

Phe Arg Lys Ile Asn Cys Arg Leu Ser Tyr Cys Ile Ser Ser Gln
                50                  55                  60

Leu Val Met Leu Leu Glu Trp Trp Ser Gly Thr Glu Cys Thr Ile
                65                  70                  75

Phe Thr Asp Pro Arg Ala Tyr Leu Lys Tyr Gly Lys Glu Asn Ala
                80                  85                  90

Ile Val Val Leu Asn His Lys Phe Glu Ile Asp Phe Leu Cys Gly
                95                  100                 105

Trp Ser Leu Ser Glu Arg Phe Gly Leu Leu Gly Gly Ser Lys Val
                110                 115                 120

Leu Ala Lys Lys Glu Leu Ala Tyr Val Pro Ile Ile Gly Trp Met
                125                 130                 135

Trp Tyr Phe Thr Glu Met Val Phe Cys Ser Arg Lys Trp Glu Gln
                140                 145                 150

Asp Arg Lys Thr Val Ala Thr Ser Leu Gln His Leu Arg Asp Tyr
                155                 160                 165

Pro Glu Lys Tyr Phe Phe Leu Ile His Cys Glu Gly Thr Arg Phe
                170                 175                 180

Thr Glu Lys Lys His Glu Ile Ser Met Gln Val Ala Arg Ala Lys
                185                 190                 195

Gly Leu Pro Arg Leu Lys His His Leu Leu Pro Arg Thr Lys Gly
                200                 205                 210

Phe Ala Ile Thr Val Arg Ser Leu Arg Asn Val Val Ser Ala Val
                215                 220                 225

Tyr Asp Cys Thr Leu Asn Phe Arg Asn Asn Glu Asn Pro Thr Leu
                230                 235                 240

Leu Gly Val Leu Asn Gly Lys Lys Tyr His Ala Asp Leu Tyr Val
                245                 250                 255

Arg Arg Ile Pro Leu Glu Asp Ile Pro Glu Asp Asp Asp Glu Cys
                260                 265                 270

Ser Ala Trp Leu His Lys Leu Tyr Gln Glu Lys Asp Ala Phe Gln
                275                 280                 285

Glu Glu Tyr Tyr Arg Thr Gly Thr Phe Pro Glu Thr Pro Met Val
```

Pro Pro Arg Arg Pro Trp Thr Leu Val Asn Trp Leu Phe Trp Ala
            305   310   315

Ser Leu Val Leu Tyr Pro Phe Phe Gln Phe Leu Val Ser Met Ile
            320   325   330

Arg Ser Gly Ser Ser Leu Thr Leu Ala Ser Phe Ile Leu Val Phe
            335   340   345

Phe Val Ala Ser Val Gly Val Arg Trp Met Ile Gly Val Thr Glu
            350   355   360

Ile Asp Lys Gly Ser Ala Tyr Gly Asn Ser Asp Ser Lys Gln Lys
            365   370   375

Leu Asn Asp

<210> 157
<211> 1849
<212> DNA
<213> Homo sapiens

<400> 157
 ctgaggcggc ggtagcatgg aggggagag tacgtcggcg gtgctctcgg 50

 gctttgtgct cggcgcactc gctttccagc acctcaacag ggactcggac 100

 acggaaggtt ttcttcttgg ggaagtaaaa ggtgaagcca agaacagcat 150

 tactgattcc caaatggatg atgttgaagt tgtttataca attgacattc 200

 agaaatatat tccatgctat cagcttttta gctttttataa ttcttcaggc 250

 gaagtaaatg agcaagcact gaagaaaata ttatcaaatg tcaaaaagaa 300

 tgtggtaggt tggtacaaat tccgtcgtca ttcagatcag atcatgacgt 350

 ttagagagag gctgcttcac aaaaacttgc aggagcattt ttcaaaccaa 400

 gaccttgttt ttctgctatt aacaccaagt ataataacag aaagctgctc 450

 tactcatcga ctggaacatt ccttatataa acctcaaaaa ggacttttc 500

 acagggtacc tttagtggtt gccaatctgg gcatgtctga caactgggt 550

 tataaaactg tatcaggttc ctgtatgtcc actggtttta gccgagcagt 600

 acaaacacac agctctaaat tttttgaaga agatggatcc ttaaaggagg 650

 tacataagat aaatgaaatg tatgcttcat tacaagagga attaaagagt 700

 atatgcaaaa aagtggaaga cagtgaacaa gcagtagata aactagtaaa 750

 ggatgtaaac agattaaaac gagaaattga gaaaaggaga ggagcacaga 800

 ttcaggcagc aagagagaag aacatccaaa aagaccctca ggagaacatt 850

 tttctttgtc aggcattacg gacctttttt ccaaattctg aatttcttca 900

 ttcatgtgtt atgtctttaa aaaatagaca tgtttctaaa agtagctgta 950

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actacaacca ccatctcgat gtagtagaca atctgacctt aatggtagaa 1000

cacactgaca ttcctgaagc tagtccagct agtacaccac aaatcattaa 1050

gcataaagcc ttagacttag atgacagatg gcaattcaag agatctcggt 1100

tgttagatac acaagacaaa cgatctaaag caaatactgg tagtagtaac 1150

caagataaag catccaaaat gagcagccca gaaacagatg aagaaattga 1200

aaagatgaag ggttttggtg aatattcacg gtctcctaca ttttgatcct 1250

tttaacctta caaggagatt tttttatttg gctgatgggt aaagccaaac 1300

atttctattg tttttactat gttgagctac ttgcagtaag ttcatttgtt 1350

tttactatgt tcacctgttt gcagtaatac acagataact cttagtgcat 1400

ttacttcaca aagtactttt tcaaacatca gatgctttta tttccaaacc 1450

tttttttcac ctttcactaa gttgttgagg ggaaggctta cacagacaca 1500

ttctttagaa ttggaaaagt gagaccaggc acagtggctc acacctgtaa 1550

tcccagcact tagggaagac aagtcaggag gattgattga agctaggagt 1600

tagagaccag cctgggcaac gtattgagac catgtctatt aaaaaataaa 1650

atggaaaagc aagaatagcc ttattttcaa aatatggaaa gaaatttata 1700

tgaaaattta tctgagtcat taaaattctc cttaagtgat actttttag 1750

aagtacatta tggctagagt tgccagataa aatgctggat atcatgcaat 1800

aaatttgcaa aacatcatct aaaatttaaa aaaaaaaaaa aaaaaaaa 1849
```

<210> 158
<211> 409
<212> PRT
<213> Homo sapiens

<400> 158
```
Met Glu Gly Glu Ser Thr Ser Ala Val Leu Ser Gly Phe Val Leu
 1               5                  10                  15

Gly Ala Leu Ala Phe Gln His Leu Asn Thr Asp Ser Asp Thr Glu
                20                  25                  30

Gly Phe Leu Leu Gly Glu Val Lys Gly Glu Ala Lys Asn Ser Ile
                35                  40                  45

Thr Asp Ser Gln Met Asp Asp Val Glu Val Val Tyr Thr Ile Asp
                50                  55                  60

Ile Gln Lys Tyr Ile Pro Cys Tyr Gln Leu Phe Ser Phe Tyr Asn
            65                  70                  75

Ser Ser Gly Glu Val Asn Glu Gln Ala Leu Lys Lys Ile Leu Ser
                80                  85                  90

Asn Val Lys Lys Asn Val Val Gly Trp Tyr Lys Phe Arg Arg His
                95                  100                 105
```

```
Ser Asp Gln Ile Met Thr Phe Arg Glu Arg Leu Leu His Lys Asn
            110                 115                 120

Leu Gln Glu His Phe Ser Asn Gln Asp Leu Val Phe Leu Leu Leu
            125                 130                 135

Thr Pro Ser Ile Ile Thr Glu Ser Cys Ser Thr His Arg Leu Glu
            140                 145                 150

His Ser Leu Tyr Lys Pro Gln Lys Gly Leu Phe His Arg Val Pro
            155                 160                 165

Leu Val Val Ala Asn Leu Gly Met Ser Glu Gln Leu Gly Tyr Lys
            170                 175                 180

Thr Val Ser Gly Ser Cys Met Ser Thr Gly Phe Ser Arg Ala Val
            185                 190                 195

Gln Thr His Ser Ser Lys Phe Phe Glu Glu Asp Gly Ser Leu Lys
            200                 205                 210

Glu Val His Lys Ile Asn Glu Met Tyr Ala Ser Leu Gln Glu Glu
            215                 220                 225

Leu Lys Ser Ile Cys Lys Lys Val Glu Asp Ser Glu Gln Ala Val
            230                 235                 240

Asp Lys Leu Val Lys Asp Val Asn Arg Leu Lys Arg Glu Ile Glu
            245                 250                 255

Lys Arg Arg Gly Ala Gln Ile Gln Ala Ala Arg Glu Lys Asn Ile
            260                 265                 270

Gln Lys Asp Pro Gln Glu Asn Ile Phe Leu Cys Gln Ala Leu Arg
            275                 280                 285

Thr Phe Phe Pro Asn Ser Glu Phe Leu His Ser Cys Val Met Ser
            290                 295                 300

Leu Lys Asn Arg His Val Ser Lys Ser Ser Cys Asn Tyr Asn His
            305                 310                 315

His Leu Asp Val Val Asp Asn Leu Thr Leu Met Val Glu His Thr
            320                 325                 330

Asp Ile Pro Glu Ala Ser Pro Ala Ser Thr Pro Gln Ile Ile Lys
            335                 340                 345

His Lys Ala Leu Asp Leu Asp Asp Arg Trp Gln Phe Lys Arg Ser
            350                 355                 360

Arg Leu Leu Asp Thr Gln Asp Lys Arg Ser Lys Ala Asn Thr Gly
            365                 370                 375

Ser Ser Asn Gln Asp Lys Ala Ser Lys Met Ser Ser Pro Glu Thr
            380                 385                 390

Asp Glu Glu Ile Glu Lys Met Lys Gly Phe Gly Glu Tyr Ser Arg
            395                 400                 405

Ser Pro Thr Phe
```

<210> 159
<211> 2651
<212> DNA
<213> Homo sapiens

<400> 159
ggcacagccg cgcggcggag ggcagagtca gccgagccga gtccagccgg 50

acgagcggac cagcgcaggg cagcccaagc agcgcgcagc gaacgcccgc 100

cgccgcccac accctctgcg gtccccgcgg cgcctgccac ccttccctcc 150

ttccccgcgt ccccgcctcg ccggccagtc agcttgccgg gttcgctgcc 200

ccgcgaaacc ccgaggtcac cagcccgcgc ctctgcttcc ctgggccgcg 250

cgccgcctcc acgccctcct tctcccctgg cccggcgcct ggcaccgggg 300

accgttgcct gacgcgaggc ccagctctac ttttcgcccc gcgtctcctc 350

cgcctgctcg cctcttccac caactccaac tccttctccc tccagctcca 400

ctcgctagtc cccgactccg ccagccctcg gcccgctgcc gtagcgccgc 450

ttcccgtccg gtcccaaagg tgggaacgcg tccgccccgg cccgcaccat 500

ggcacggttc ggcttgcccg cgcttctctg caccctggca gtgctcagcg 550

ccgcgctgct ggctgccgag ctcaagtcga aaagttgctc ggaagtgcga 600

cgtctttacg tgtccaaagg cttcaacaag aacgatgccc ccctccacga 650

gatcaacggt gatcatttga agatctgtcc ccaggggtct acctgctgct 700

ctcaagagat ggaggagaag tacagcctgc aaagtaaaga tgatttcaaa 750

agtgtggtca gcgaacagtg caatcatttg caagctgtct ttgcttcacg 800

ttacaagaag tttgatgaat tcttcaaaga actacttgaa aatgcagaga 850

aatccctgaa tgatatgttt gtgaagacat atggccattt atacatgcaa 900

aattctgagc tatttaaaga tctcttcgta gagttgaaac gttactacgt 950

ggtgggaaat gtgaacctgg aagaaatgct aaatgacttc tgggctcgcc 1000

tcctggagc gatgttccgc ctggtgaact cccagtacca ctttacagat 1050

gagtatctg aatgtgtgag caagtatacg gagcagctga gcccttcgg 1100

agatgtccct cgcaaattga agctccaggt tactcgtgct tttgtagcag 1150

cccgtacttt cgctcaaggc ttagcggttg cgggagatgt cgtgagcaag 1200

gtctccgtgg taaaccccac agcccagtgt acccatgccc tgttgaagat 1250

gatctactgc tcccactgcc ggggtctcgt gactgtgaag ccatgttaca 1300

actactgctc aaacatcatg agaggctgtt tggccaacca aggggatctc 1350

gattttgaat ggaacaattt catagatgct atgctgatgg tggcagagag 1400

gctagagggt cctttcaaca ttgaatcggt catggatccc atcgatgtga 1450

139

```
agatttctga tgctattatg aacatgcagg ataatagtgt tcaagtgtct 1500

cagaaggttt tccagggatg tggacccccc aagcccctcc cagctggacg 1550

aatttctcgt tccatctctg aaagtgcctt cagtgctcgc ttcagaccac 1600

atcaccccga ggaacgccca accacagcag ctggcactag tttggaccga 1650

ctggttactg atgtcaagga gaaactgaaa caggccaaga aattctggtc 1700

ctcccttccg agcaacgttt gcaacgatga gaggatggct gcaggaaacg 1750

gcaatgagga tgactgttgg aatgggaaag gcaaaagcag gtacctgttt 1800

gcagtgacag gaaatggatt agccaaccag ggcaacaacc cagaggtcca 1850

ggttgacacc agcaaaccag acatactgat ccttcgtcaa atcatggctc 1900

ttcgagtgat gaccagcaag atgaagaatg catacaatgg gaacgacgtg 1950

gacttctttg atatcagtga tgaaagtagt ggagaaggaa gtggaagtgg 2000

ctgtgagtat cagcagtgcc cttcagagtt tgactacaat gccactgacc 2050

atgctgggaa gagtgccaat gagaaagccg acagtgctgg tgtccgtcct 2100

gggcacagg cctacctcct cactgtcttc tgcatcttgt tcctggttat 2150

gcagagagag tggagataat tctcaaactc tgagaaaaag tgttcatcaa 2200

aaagttaaaa ggcaccagtt atcactttc taccatccta gtgactttgc 2250

tttttaaatg aatggacaac aatgtacagt ttttactatg tggccactgg 2300

tttaagaagt gctgactttg ttttctcatt cagttttggg aggaaaaggg 2350

actgtgcatt gagttggttc ctgctccccc aaaccatgtt aaacgtggct 2400

aacagtgtag gtacagaact atagttagtt gtgcatttgt gatttttatca 2450

ctctattatt tgtttgtatg tttttttctc atttcgtttg tgggtttttt 2500

tttccaactg tgatctcgcc ttgtttctta caagcaaacc agggtccctt 2550

cttggcacgt aacatgtacg tatttctgaa atattaaata gctgtacaga 2600

agcaggtttt atttatcatg ttatcttatt aaaagaaaaa gcccaaaaag 2650

c 2651
```

<210> 160
<211> 556
<212> PRT
<213> Homo sapiens

<400> 160

```
Met Ala Arg Phe Gly Leu Pro Ala Leu Leu Cys Thr Leu Ala Val
  1               5                  10                  15

Leu Ser Ala Ala Leu Leu Ala Ala Glu Leu Lys Ser Lys Ser Cys
                 20                  25                  30

Ser Glu Val Arg Arg Leu Tyr Val Ser Lys Gly Phe Asn Lys Asn
```

140

```
                  35                    40                    45
Asp Ala Pro Leu His Glu Ile Asn Gly Asp His Leu Lys Ile Cys
                  50                    55                    60
Pro Gln Gly Ser Thr Cys Cys Ser Gln Glu Met Glu Glu Lys Tyr
                  65                    70                    75
Ser Leu Gln Ser Lys Asp Asp Phe Lys Ser Val Val Ser Glu Gln
                  80                    85                    90
Cys Asn His Leu Gln Ala Val Phe Ala Ser Arg Tyr Lys Lys Phe
                  95                   100                   105
Asp Glu Phe Phe Lys Glu Leu Leu Glu Asn Ala Glu Lys Ser Leu
                 110                   115                   120
Asn Asp Met Phe Val Lys Thr Tyr Gly His Leu Tyr Met Gln Asn
                 125                   130                   135
Ser Glu Leu Phe Lys Asp Leu Phe Val Glu Leu Lys Arg Tyr Tyr
                 140                   145                   150
Val Val Gly Asn Val Asn Leu Glu Glu Met Leu Asn Asp Phe Trp
                 155                   160                   165
Ala Arg Leu Leu Glu Arg Met Phe Arg Leu Val Asn Ser Gln Tyr
                 170                   175                   180
His Phe Thr Asp Glu Tyr Leu Glu Cys Val Ser Lys Tyr Thr Glu
                 185                   190                   195
Gln Leu Lys Pro Phe Gly Asp Val Pro Arg Lys Leu Lys Leu Gln
                 200                   205                   210
Val Thr Arg Ala Phe Val Ala Ala Arg Thr Phe Ala Gln Gly Leu
                 215                   220                   225
Ala Val Ala Gly Asp Val Val Ser Lys Val Ser Val Val Asn Pro
                 230                   235                   240
Thr Ala Gln Cys Thr His Ala Leu Leu Lys Met Ile Tyr Cys Ser
                 245                   250                   255
His Cys Arg Gly Leu Val Thr Val Lys Pro Cys Tyr Asn Tyr Cys
                 260                   265                   270
Ser Asn Ile Met Arg Gly Cys Leu Ala Asn Gln Gly Asp Leu Asp
                 275                   280                   285
Phe Glu Trp Asn Asn Phe Ile Asp Ala Met Leu Met Val Ala Glu
                 290                   295                   300
Arg Leu Glu Gly Pro Phe Asn Ile Glu Ser Val Met Asp Pro Ile
                 305                   310                   315
Asp Val Lys Ile Ser Asp Ala Ile Met Asn Met Gln Asp Asn Ser
                 320                   325                   330
Val Gln Val Ser Gln Lys Val Phe Gln Gly Cys Gly Pro Pro Lys
                 335                   340                   345
Pro Leu Pro Ala Gly Arg Ile Ser Arg Ser Ile Ser Glu Ser Ala
```

```
                    350                   355                   360
   Phe Ser Ala Arg Phe Arg Pro His His Pro Glu Glu Arg Pro Thr
                    365                   370                   375
   Thr Ala Ala Gly Thr Ser Leu Asp Arg Leu Val Thr Asp Val Lys
                    380                   385                   390
   Glu Lys Leu Lys Gln Ala Lys Lys Phe Trp Ser Ser Leu Pro Ser
                    395                   400                   405
   Asn Val Cys Asn Asp Glu Arg Met Ala Ala Gly Asn Gly Asn Glu
                    410                   415                   420
   Asp Asp Cys Trp Asn Gly Lys Gly Lys Ser Arg Tyr Leu Phe Ala
                    425                   430                   435
   Val Thr Gly Asn Gly Leu Ala Asn Gln Gly Asn Asn Pro Glu Val
                    440                   445                   450
   Gln Val Asp Thr Ser Lys Pro Asp Ile Leu Ile Leu Arg Gln Ile
                    455                   460                   465
   Met Ala Leu Arg Val Met Thr Ser Lys Met Lys Asn Ala Tyr Asn
                    470                   475                   480
   Gly Asn Asp Val Asp Phe Phe Asp Ile Ser Asp Glu Ser Ser Gly
                    485                   490                   495
   Glu Gly Ser Gly Ser Gly Cys Glu Tyr Gln Gln Cys Pro Ser Glu
                    500                   505                   510
   Phe Asp Tyr Asn Ala Thr Asp His Ala Gly Lys Ser Ala Asn Glu
                    515                   520                   525
   Lys Ala Asp Ser Ala Gly Val Arg Pro Gly Ala Gln Ala Tyr Leu
                    530                   535                   540
   Leu Thr Val Phe Cys Ile Leu Phe Leu Val Met Gln Arg Glu Trp
                    545                   550                   555
   Arg
```

<210> 161
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 161
 ctccgtggta aaccccacag ccc 23

<210> 162
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

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<400> 162
 tcacatcgat gggatccatg accg 24

<210> 163
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 163
 ggtctcgtga ctgtgaagcc atgttacaac tactgctcaa acatcatgag 50

<210> 164
<211> 870
<212> DNA
<213> Homo sapiens

<400> 164
 ctcgccctca aatgggaacg ctggcctggg actaaagcat agaccaccag 50

 gctgagtatc ctgacctgag tcatccccag ggatcaggag cctccagcag 100

 ggaaccttcc attatattct tcaagcaact tacagctgca ccgacagttg 150

 cgatgaaagt tctaatctct tccctcctcc tgttgctgcc actaatgctg 200

 atgtccatgg tctctagcag cctgaatcca ggggtcgcca gaggccacag 250

 ggaccgaggc caggcttcta ggagatggct ccaggaaggc ggccaagaat 300

 gtgagtgcaa agattggttc ctgagagccc cgagaagaaa attcatgaca 350

 gtgtctgggc tgccaaagaa gcagtgcccc tgtgatcatt tcaagggcaa 400

 tgtgaagaaa acaagacacc aaaggcacca cagaaagcca aacaagcatt 450

 ccagagcctg ccagcaattt ctcaaacaat gtcagctaag aagctttgct 500

 ctgcctttgt aggagctctg agcgcccact cttccaatta aacattctca 550

 gccaagaaga cagtgagcac acctaccaga cactcttctt ctcccacctc 600

 actctcccac tgtacccacc cctaaatcat tccagtgctc tcaaaaagca 650

 tgtttttcaa gatcattttg tttgttgctc tctctagtgt cttcttctct 700

 cgtcagtctt agcctgtgcc ctccccttac ccaggcttag gcttaattac 750

 ctgaaagatt ccaggaaact gtagcttcct agctagtgtc atttaacctt 800

 aaatgcaatc aggaaagtag caaacagaag tcaataaata tttttaaatg 850

 tcaaaaaaaa aaaaaaaaa 870

<210> 165
<211> 119
<212> PRT
<213> Homo sapiens

<400> 165
 Met Lys Val Leu Ile Ser Ser Leu Leu Leu Leu Leu Pro Leu Met
```

143

```
    1              5                  10                    15
  Leu Met Ser Met Val Ser Ser Ser Leu Asn Pro Gly Val Ala Arg
                  20                      25                  30
  Gly His Arg Asp Arg Gly Gln Ala Ser Arg Arg Trp Leu Gln Glu
                  35                      40                  45
  Gly Gly Gln Glu Cys Glu Cys Lys Asp Trp Phe Leu Arg Ala Pro
                  50                      55                  60
  Arg Arg Lys Phe Met Thr Val Ser Gly Leu Pro Lys Lys Gln Cys
                  65                      70                  75
  Pro Cys Asp His Phe Lys Gly Asn Val Lys Lys Thr Arg His Gln
                  80                      85                  90
  Arg His His Arg Lys Pro Asn Lys His Ser Arg Ala Cys Gln Gln
                  95                     100                 105
  Phe Leu Lys Gln Cys Gln Leu Arg Ser Phe Ala Leu Pro Leu
                 110                     115
```

<210> 166
<211> 551
<212> DNA
<213> Homo sapiens

<400> 166
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 aatggctgtc ttagtacttc gcctgacagt tgtcctggga ctgcttgtct 50

 tattcctgac ctgctatgca gacgacaaac cagacaagcc agacgacaag 100

 ccagacgact cgggcaaaga cccaaagcca gacttcccca aattcctaag 150

 cctcctgggc acagagatca ttgagaatgc agtcgagttc atcctccgct 200

 ccatgtccag gagcacagga tttatggaat ttgatgataa tgaaggaaaa 250

 cattcatcaa agtgacatcc tcaggacaca cccatgtggc tcctggacaa 300

 tccaagagca gccaaatcct gcttttccag tttggctcca caagtcctcc 350

 aggacagagc cctcaaagca actcccaacg agttctcagg attcaggctc 400

 tggcttcaac caaacagaac tcattttgaa caccctgact gcattttttgc 450

 ttttagaaag ttagaataaa tatggcgctt tgggatcaca tagttgatgg 500

 agaggaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 550

 a 551
```

<210> 167
<211> 87
<212> PRT
<213> Homo sapiens

<400> 167
```
 Met Ala Val Leu Val Leu Arg Leu Thr Val Val Leu Gly Leu Leu
   1              5                  10                    15
 Val Leu Phe Leu Thr Cys Tyr Ala Asp Asp Lys Pro Asp Lys Pro
```

Asp Asp Lys Pro Asp Asp Ser Gly Lys Asp Pro Lys Pro Asp Phe
                35   40   45

Pro Lys Phe Leu Ser Leu Leu Gly Thr Glu Ile Ile Glu Asn Ala
                50   55   60

Val Glu Phe Ile Leu Arg Ser Met Ser Arg Ser Thr Gly Phe Met
                65   70   75

Glu Phe Asp Asp Asn Glu Gly Lys His Ser Ser Lys
                80   85

<210> 168
<211> 1371
<212> DNA
<213> Homo sapiens

<400> 168
 ggacgccagc gcctgcagag gctgagcagg gaaaaagcca gtgccccagc 50

 ggaagcacag ctcagagctg gtctgccatg gacatcctgg tcccactcct 100

 gcagctgctg gtgctgcttc ttaccctgcc cctgcacctc atggctctgc 150

 tgggctgctg gcagcccctg tgcaaaagct acttccccta cctgatggcc 200

 gtgctgactc ccaagagcaa ccgcaagatg gagagcaaga aacgggagct 250

 cttcagccag ataaaggggc ttacaggagc ctccgggaaa gtggccctac 300

 tggagctggg ctgcggaacc ggagccaact ttcagttcta cccaccgggc 350

 tgcagggtca cctgcctaga cccaaatccc cactttgaga gttcctgac 400

 aaagagcatg gctgagaaca ggcacctcca atatgagcgg tttgtggtgg 450

 ctcctggaga ggacatgaga cagctggctg atggctccat ggatgtggtg 500

 gtctgcactc tggtgctgtg ctctgtgcag agcccaagga aggtcctgca 550

 ggaggtccgg agagtactga gaccgggagg tgtgctcttt ttctgggagc 600

 atgtggcaga accatatgag agctgggcct tcatgtggca gcaagttttc 650

 gagcccacct ggaaacacat tggggatggc tgctgcctca ccagagagac 700

 ctggaaggat cttgagaacg cccagttctc cgaaatccaa atggaacgac 750

 agcccccctcc cttgaagtgg ctacctgttg ggccccacat catgggaaag 800

 gctgtcaaac aatctttccc aagctccaag gcactcattt gctccttccc 850

 cagcctccaa ttagaacaag ccaccaccca gcctatctat cttccactga 900

 gagggaccta gcagaatgag agaagacatt catgtaccac ctactagtcc 950

 ctctctcccc aacctctgcc agggcaatct ctaacttcaa tcccgccttc 1000

 gacagtgaaa aagctctact tctacgctga cccagggagg aaacactagg 1050

 accctgttgt atcctcaact gcaagtttct ggactagtct cccaacgttt 1100

```
gcctcccaat gttgtccctt tccttcgttc ccatggtaaa gctcctctcg 1150

ctttcctcct gaggctacac ccatgcgtct ctaggaactg gtcacaaaag 1200

tcatggtgcc tgcatccctg ccaagccccc ctgaccctct ctccccacta 1250

ccaccttctt cctgagctgg gggcaccagg gagaatcaga gatgctgggg 1300

atgccagagc aagactcaaa gaggcagagg ttttgttctc aaatattttt 1350

taataaatag acgaaaccac g 1371
```

<210> 169
<211> 277
<212> PRT
<213> Homo sapiens

<400> 169

```
Met Asp Ile Leu Val Pro Leu Leu Gln Leu Leu Val Leu Leu Leu
1               5                   10                  15

Thr Leu Pro Leu His Leu Met Ala Leu Leu Gly Cys Trp Gln Pro
                20                  25                  30

Leu Cys Lys Ser Tyr Phe Pro Tyr Leu Met Ala Val Leu Thr Pro
                35                  40                  45

Lys Ser Asn Arg Lys Met Glu Ser Lys Lys Arg Glu Leu Phe Ser
                50                  55                  60

Gln Ile Lys Gly Leu Thr Gly Ala Ser Gly Lys Val Ala Leu Leu
                65                  70                  75

Glu Leu Gly Cys Gly Thr Gly Ala Asn Phe Gln Phe Tyr Pro Pro
                80                  85                  90

Gly Cys Arg Val Thr Cys Leu Asp Pro Asn Pro His Phe Glu Lys
                95                  100                 105

Phe Leu Thr Lys Ser Met Ala Glu Asn Arg His Leu Gln Tyr Glu
                110                 115                 120

Arg Phe Val Val Ala Pro Gly Glu Asp Met Arg Gln Leu Ala Asp
                125                 130                 135

Gly Ser Met Asp Val Val Val Cys Thr Leu Val Leu Cys Ser Val
                140                 145                 150

Gln Ser Pro Arg Lys Val Leu Gln Glu Val Arg Arg Val Leu Arg
                155                 160                 165

Pro Gly Gly Val Leu Phe Phe Trp Glu His Val Ala Glu Pro Tyr
                170                 175                 180

Gly Ser Trp Ala Phe Met Trp Gln Gln Val Phe Glu Pro Thr Trp
                185                 190                 195

Lys His Ile Gly Asp Gly Cys Cys Leu Thr Arg Glu Thr Trp Lys
                200                 205                 210

Asp Leu Glu Asn Ala Gln Phe Ser Glu Ile Gln Met Glu Arg Gln
                215                 220                 225
```

```
Pro Pro Pro Leu Lys Trp Leu Pro Val Gly Pro His Ile Met Gly
                230                 235                 240

Lys Ala Val Lys Gln Ser Phe Pro Ser Ser Lys Ala Leu Ile Cys
                245                 250                 255

Ser Phe Pro Ser Leu Gln Leu Glu Gln Ala Thr His Gln Pro Ile
                260                 265                 270

Tyr Leu Pro Leu Arg Gly Thr
                275
```

<210> 170
<211> 1621
<212> DNA
<213> Homo sapiens

<400> 170
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 gtgggattta tttgagtgca agatcgtttt ctcagtggtg gtggaagttg 50

 cctcatcgca ggcagatgtt ggggctttgt ccgaacagct cccctctgcc 100

 agcttctgta gataagggtt aaaaactaat atttatatga cagaagaaaa 150

 agatgtcatt ccgtaaagta aacatcatca tcttggtcct ggctgttgct 200

 ctcttcttac tggttttgca ccataacttc ctcagcttga gcagtttgtt 250

 aaggaatgag gttacagatt caggaattgt agggcctcaa cctatagact 300

 ttgtcccaaa tgctctccga catgcagtag atgggagaca agaggagatt 350

 cctgtggtca tcgctgcatc tgaagacagg cttggggggg ccattgcagc 400

 tataaacagc attcagcaca cactcgctc caatgtgatt ttctacattg 450

 ttactctcaa caatacagca gaccatctcc ggtcctggct caacagtgat 500

 tccctgaaaa gcatcagata caaaattgtc aattttgacc ctaaactttt 550

 ggaaggaaaa gtaaaggagg atcctgacca gggggaatcc atgaaacctt 600

 taacctttgc aaggttctac ttgccaattc tggttcccag cgcaaagaag 650

 gccatataca tggatgatga tgtaattgtg caaggtgata ttcttgccct 700

 ttacaataca gcactgaagc caggacatgc agctgcattt tcagaagatt 750

 gtgattcagc ctctactaaa gttgtcatcc gtggagcagg aaaccagtac 800

 aattacattg gctatcttga ctataaaaag gaaagaattc gtaagctttc 850

 catgaaagcc agcacttgct catttaatcc tggagttttt gttgcaaacc 900

 tgacggaatg gaaacgacag aatataacta accaactgga aaaatggatg 950

 aaactcaatg tagaagaggg actgtatagc agaaccctgg ctggtagcat 1000

 cacaacacct cctctgctta tcgtatttta tcaacagcac tctaccatcg 1050

 atcctatgtg gaatgtccgc caccttggtt ccagtgctgg aaaacgatat 1100

 tcacctcagt ttgtaaaggc tgccaagtta ctccattgga atggacattt 1150
```

147

```
gaagccatgg ggaaggactg cttcatatac tgatgtttgg gaaaaatggt 1200

atattccaga cccaacaggc aaattcaacc taatccgaag atataccgag 1250

atctcaaaca taaagtgaaa cagaatttga actgtaagca agcatttctc 1300

aggaagtcct ggaagatagc atgcatggga agtaacagtt gctaggcttc 1350

aatgcctatc ggtagcaagc catggaaaaa gatgtgtcag ctaggtaaag 1400

atgacaaact gccctgtctg gcagtcagct tcccagacag actatagact 1450

ataaatatgt ctccatctgc cttaccaagt gttttcttac tacaatgctg 1500

aatgactgga aagaagaact gatatggcta gttcagctag ctggtacaga 1550

taattcaaaa ctgctgttgg ttttaatttt gtaacctgtg gcctgatctg 1600

taaataaaac ttacattttt c 1621
```

<210> 171
<211> 371
<212> PRT
<213> Homo sapiens

<400> 171

```
Met Ser Phe Arg Lys Val Asn Ile Ile Ile Leu Val Leu Ala Val
 1               5                  10                  15

Ala Leu Phe Leu Leu Val Leu His His Asn Phe Leu Ser Leu Ser
                20                  25                  30

Ser Leu Leu Arg Asn Glu Val Thr Asp Ser Gly Ile Val Gly Pro
                35                  40                  45

Gln Pro Ile Asp Phe Val Pro Asn Ala Leu Arg His Ala Val Asp
                50                  55                  60

Gly Arg Gln Glu Glu Ile Pro Val Val Ile Ala Ala Ser Glu Asp
                65                  70                  75

Arg Leu Gly Gly Ala Ile Ala Ala Ile Asn Ser Ile Gln His Asn
                80                  85                  90

Thr Arg Ser Asn Val Ile Phe Tyr Ile Val Thr Leu Asn Asn Thr
                95                  100                 105

Ala Asp His Leu Arg Ser Trp Leu Asn Ser Asp Ser Leu Lys Ser
                110                 115                 120

Ile Arg Tyr Lys Ile Val Asn Phe Asp Pro Lys Leu Leu Glu Gly
                125                 130                 135

Lys Val Lys Glu Asp Pro Asp Gln Gly Glu Ser Met Lys Pro Leu
                140                 145                 150

Thr Phe Ala Arg Phe Tyr Leu Pro Ile Leu Val Pro Ser Ala Lys
                155                 160                 165

Lys Ala Ile Tyr Met Asp Asp Asp Val Ile Val Gln Gly Asp Ile
                170                 175                 180

Leu Ala Leu Tyr Asn Thr Ala Leu Lys Pro Gly His Ala Ala Ala
```

148

Phe Ser Glu Asp Cys Asp Ser Ala Ser Thr Lys Val Val Ile Arg
                200   205   210

Gly Ala Gly Asn Gln Tyr Asn Tyr Ile Gly Tyr Leu Asp Tyr Lys
                215   220   225

Lys Glu Arg Ile Arg Lys Leu Ser Met Lys Ala Ser Thr Cys Ser
                230   235   240

Phe Asn Pro Gly Val Phe Val Ala Asn Leu Thr Glu Trp Lys Arg
                245   250   255

Gln Asn Ile Thr Asn Gln Leu Glu Lys Trp Met Lys Leu Asn Val
                260   265   270

Glu Glu Gly Leu Tyr Ser Arg Thr Leu Ala Gly Ser Ile Thr Thr
                275   280   285

Pro Pro Leu Leu Ile Val Phe Tyr Gln Gln His Ser Thr Ile Asp
                290   295   300

Pro Met Trp Asn Val Arg His Leu Gly Ser Ser Ala Gly Lys Arg
                305   310   315

Tyr Ser Pro Gln Phe Val Lys Ala Ala Lys Leu Leu His Trp Asn
                320   325   330

Gly His Leu Lys Pro Trp Gly Arg Thr Ala Ser Tyr Thr Asp Val
                335   340   345

Trp Glu Lys Trp Tyr Ile Pro Asp Pro Thr Gly Lys Phe Asn Leu
                350   355   360

Ile Arg Arg Tyr Thr Glu Ile Ser Asn Ile Lys
                365   370

<210> 172
<211> 585
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 71, 76, 86, 91, 162, 220, 269, 281
<223> unknown base

<400> 172
 tggttttttgc cccataaatt ccctcagctt gagcagtttg ttaaggaatg 50

 aggttacaga ttcaggaatt ntaggnectc aacctntaga ntttgtccca 100

 aatgttctcc gacatgcagt agatgggaga caagaggaga ttcctgtggt 150

 catcgctgca tntgaagaca ggcttggggg ggccattgca gctataaaca 200

 gcattcagca caacactcgn tccaatgtga ttttctacat tgttactctc 250

 aacaatacag cagaccatnt ccggtcctgg ntcaacagtg attccctgaa 300

 aagcatcaga tacaaaattg tcaattttga ccctaaactt ttggaaggaa 350

aagtaaagga ggatcctgac caggggaat ccatgaaacc tttaaccttt 400

gcaaggttct acttgccaat tctggttccc agcgcaaaga aggccatata 450

catggatgat gatgtaattg tgcaaggtga tattcttgcc ctttacaata 500

cagcactgaa gccaggacat gcagctgcat tttcagaaga ttgtgattca 550

gcctctacta aagttgtcat ccgtggagca ggaaa 585

<210> 173
<211> 1866
<212> DNA
<213> Homo sapiens

<400> 173
cgacgctcta gcggttaccg ctgcgggctg gctgggcgta gtggggctgc 50

gcggctgcca cggagctaga gggcaagtgt gctcggccca gcgtgcaggg 100

aacgcgggcg gccagacaac gggctgggct ccggggcctg cggcgcgggc 150

gctgagctgg caggggcgggt cggggcgcgg gctgcatccg catctcctcc 200

atcgcctgca gtaagggcgg ccgcggcgag cctttgaggg gaacgacttg 250

tcggagccct aaccaggggt gtctctgagc ctggtgggat ccccggagcg 300

tcacatcact ttccgatcac ttcaaagtgg ttaaaaacta atatttatat 350

gacagaagaa aaagatgtca ttccgtaaag taaacatcat catcttggtc 400

ctgggctgtt gctctcttct tactggtttt gcaccataac ttcctcagct 450

tgaggcagtt tgttaaggaa tgaggttaca gattcaggaa ttgtagggcc 500

tcaacctata ggactttgtc ccaaatgctc tccgacatgc agtagatggg 550

agacaagagg agattcctgt ggtcatcgct gcatctgaag acaggcttgg 600

gggggccatt gcagctataa acagcattca gcacaacact cgctccaatg 650

tgattttcta cattgttact ctcaacaata cagcagacca tctccggtcc 700

tgggctcaac agtgattccc tgaaaagcat cagatacaaa attgtcaatt 750

ttgaccctaa acttttggaa ggaaaagtaa aggaggatcc tgaccagggg 800

gaatccatga aacctttaac ctttgcaagg ttctacttgc caattctggg 850

ttcccagcgc aaagaaggcc atatacatgg atgatgatgt aattgtgcaa 900

ggtgatattc ttgcccttta caatacagca ctgaagccag gacatgcagc 950

tgcattttca gaagattgtg attcagcctc tactaaagtt gtcatccgtg 1000

gagcaggaaa ccagtacaat tacattggct atcttgacta taaaaaggaa 1050

agaattcgta gctttccat gaaagccagc acttgctcat ttaatcctgg 1100

agtttttgtt gcaaacctga cggaatggaa acgacagaat ataactaacc 1150

aactggaaaa atggatgaaa ctcaatgtag aagagggact gtatagcaga 1200

150

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accctggctg gtagcatcac aacacctcct ctgcttatcg tattttatca 1250

acagcactct accatcgatc ctatgtggaa tgtccgccac cttggttcca 1300

gtgctggaaa acgatattca cctcagtttg taaaggctgc caagttactc 1350

cattggaatg gacatttgaa gccatgggga aggactgctt catatactga 1400

tgtttgggga aaaatggtat attccagacc caacaggcaa attcaaccta 1450

atccgaagat ataccgagat ctcaaacata aagtgaaaca gaatttgaac 1500

tgtaagcaag catttctcag gaagtcctgg aagatagcat gcgtgggaag 1550

taacagttgc taggcttcaa tgcctatcgg tagcaagcca tggaaaaaga 1600

tgtgtcagct aggtaaagat gacaaactgc cctgtctggc agtcagcttc 1650

ccagacagac tatagactat aaatatgtct ccatctgcct taccaagtgt 1700

tttcttacta caatgctgaa tgactggaaa gaagaactga tatggctagt 1750

tcagctagct ggtacagata attcaaaact gctgttggtt ttaattttgt 1800

aacctgtggc ctgatctgta aataaaactt acatttttca ataggtaaaa 1850

aaaaaaaaaa aaaaaa 1866
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<210> 174
<211> 823
<212> DNA
<213> Homo sapiens

<400> 174
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ctcaccattg aggcagctcc actgtctgtg ctggtctgag ggtgctgcct 150

gtcatggggg cagccatctc ccaggggccc ctcatcgcca tcgtctgcaa 200

cggtctcgtg ggcttcttgc tgctgctgct ctgggtcatc ctctgctggg 250

cctgccattc tcgtctgccg acgttgactc tctctctgaa tccagtccca 300

actccagccc tggcccctgt cctgagaagg ccccaccacc ccagaagccc 350

agccatgaag gcagctacct gctgcagccc tgaaggcccc tggcctagcc 400

tggagcccag gacctaagtc cacctcacct agagcctgga attaggatcc 450

cagagttcag ccagcctggg gtccagaact caagagtccg cctgcttgga 500

gctggaccca gcggcccaga gtctagccag cttggctcca ataggagctc 550

agtggcccta aggagatggg cctggggtgg gggcttatga gttggtgcta 600

gagccagggc catctggact atgctccatc ccaagggcca agggtcaggg 650

gccgggtcca ctctttccct aggctgagca cctctaggcc ctctaggttg 700

gggaagcaaa ctggaaccca tggcaataat aggagggtgt ccaggctggg 750
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ctctaaaaaa aaaaaaaaaa aaa 823
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<210> 175
<211> 87
<212> PRT
<213> Homo sapiens

<400> 175
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Met Gly Ala Ala Ile Ser Gln Gly Ala Leu Ile Ala Ile Val Cys
 1               5                  10                      15

Asn Gly Leu Val Gly Phe Leu Leu Leu Leu Leu Trp Val Ile Leu
                20                  25                      30

Cys Trp Ala Cys His Ser Arg Leu Pro Thr Leu Thr Leu Ser Leu
                35                  40                      45

Asn Pro Val Pro Thr Pro Ala Leu Ala Pro Val Leu Arg Arg Pro
                50                  55                      60

His His Pro Arg Ser Pro Ala Met Lys Ala Ala Thr Cys Cys Ser
                65                  70                      75

Pro Glu Gly Pro Trp Pro Ser Leu Glu Pro Arg Thr
                80                  85
```

<210> 176
<211> 1660
<212> DNA
<213> Homo sapiens

<400> 176
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cccaggctac cagttcctcc aagcaagtca tttcccttat ttaaccgatg 100

tgtccctcaa acacctgagt gctactccct atttgcatct gttttgataa 150

atgatgttga caccctccac cgaattctaa gtggaatcat gtcgggaaga 200

gatacaatcc ttggcctgtg tatcctcgca ttagccttgt ctttggccat 250

gatgtttacc ttcagattca tcaccaccct tctggttcac attttcattt 300

cattggttat tttgggattg ttgtttgtct gcggtgtttt atggtggctg 350

tattatgact ataccaacga cctcagcata gaattggaca cagaaaggga 400

aaatatgaag tgcgtgctgg ggtttgctat cgtatccaca ggcatcacgg 450

cagtgctgct cgtcttgatt tttgttctca gaaagagaat aaaattgaca 500

gttgagcttt tccaaatcac aaataaagcc atcagcagtg ctcccttcct 550

gctgttccag ccactgtgga catttgccat cctcattttc ttctgggtcc 600

tctgggtggc tgtgctgctg agcctgggaa ctgcaggagc tgcccaggtt 650

atggaaggcg gccaagtgga atataagccc ctttcgggca ttcggtacat 700

gtggtcgtac catttaattg gcctcatctg gactagtgaa ttcatccttg 750
```
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                              152
```

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cgtgccagca aatgactata gctggggcag tggttacttg ttatttcaac 800

agaagtaaaa atgatcctcc tgatcatccc atcctttcgt ctctctccat 850

tctcttcttc taccatcaag gaaccgttgt gaaagggtca tttttaatct 900

ctgtggtgag gattccgaga atcattgtca tgtacatgca aaacgcactg 950

aaagaacagc agcatggtgc attgtccagg tacctgttcc gatgctgcta 1000

ctgctgtttc tggtgtcttg acaaatacct gctccatctc aaccagaatg 1050

catatactac aactgctatt aatgggacag atttctgtac atcagcaaaa 1100

gatgcattca aaatcttgtc caagaactca agtcacttta catctattaa 1150

ctgctttgga gacttcataa tttttctagg aaaggtgtta gtggtgtgtt 1200

tcactgtttt tggaggactc atggctttta actacaatcg ggcattccag 1250

gtgtgggcag tccctctgtt attggtagct ttttttgcct acttagtagc 1300

ccatagtttt ttatctgtgt ttgaaactgt gctggatgca cttttcctgt 1350

gttttgctgt tgatctggaa acaaatgatg gatcgtcaga aaagccctac 1400

tttatggatc aagaatttct gagtttcgta aaaaggagca acaaattaaa 1450

caatgcaagg gcacagcagg acaagcactc attaaggaat gaggagggaa 1500

cagaactcca ggccattgtg agatagatac ccatttaggt atctgtacct 1550

ggaaaacatt tccttctaag agccatttac agaatagaag atgagaccac 1600

tagagaaaag ttagtgaatt tttttttaaa agacctaata aaccctattc 1650

ttcctcaaaa 1660
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<210> 177
<211> 445
<212> PRT
<213> Homo sapiens

<400> 177
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Met Ser Gly Arg Asp Thr Ile Leu Gly Leu Cys Ile Leu Ala Leu
 1               5                  10                  15

Ala Leu Ser Leu Ala Met Met Phe Thr Phe Arg Phe Ile Thr Thr
                20                  25                  30

Leu Leu Val His Ile Phe Ile Ser Leu Val Ile Leu Gly Leu Leu
                35                  40                  45

Phe Val Cys Gly Val Leu Trp Trp Leu Tyr Tyr Asp Tyr Thr Asn
                50                  55                  60

Asp Leu Ser Ile Glu Leu Asp Thr Glu Arg Glu Asn Met Lys Cys
                65                  70                  75

Val Leu Gly Phe Ala Ile Val Ser Thr Gly Ile Thr Ala Val Leu
                80                  85                  90

Leu Val Leu Ile Phe Val Leu Arg Lys Arg Ile Lys Leu Thr Val
```

Glu Leu Phe Gln Ile Thr Asn Lys Ala Ile Ser Ser Ala Pro Phe
      110   115   120

Leu Leu Phe Gln Pro Leu Trp Thr Phe Ala Ile Leu Ile Phe Phe
      125   130   135

Trp Val Leu Trp Val Ala Val Leu Leu Ser Leu Gly Thr Ala Gly
      140   145   150

Ala Ala Gln Val Met Glu Gly Gly Gln Val Glu Tyr Lys Pro Leu
      155   160   165

Ser Gly Ile Arg Tyr Met Trp Ser Tyr His Leu Ile Gly Leu Ile
      170   175   180

Trp Thr Ser Glu Phe Ile Leu Ala Cys Gln Gln Met Thr Ile Ala
      185   190   195

Gly Ala Val Val Thr Cys Tyr Phe Asn Arg Ser Lys Asn Asp Pro
      200   205   210

Pro Asp His Pro Ile Leu Ser Ser Leu Ser Ile Leu Phe Phe Tyr
      215   220   225

His Gln Gly Thr Val Val Lys Gly Ser Phe Leu Ile Ser Val Val
      230   235   240

Arg Ile Pro Arg Ile Ile Val Met Tyr Met Gln Asn Ala Leu Lys
      245   250   255

Glu Gln Gln His Gly Ala Leu Ser Arg Tyr Leu Phe Arg Cys Cys
      260   265   270

Tyr Cys Cys Phe Trp Cys Leu Asp Lys Tyr Leu Leu His Leu Asn
      275   280   285

Gln Asn Ala Tyr Thr Thr Thr Ala Ile Asn Gly Thr Asp Phe Cys
      290   295   300

Thr Ser Ala Lys Asp Ala Phe Lys Ile Leu Ser Lys Asn Ser Ser
      305   310   315

His Phe Thr Ser Ile Asn Cys Phe Gly Asp Phe Ile Ile Phe Leu
      320   325   330

Gly Lys Val Leu Val Val Cys Phe Thr Val Phe Gly Gly Leu Met
      335   340   345

Ala Phe Asn Tyr Asn Arg Ala Phe Gln Val Trp Ala Val Pro Leu
      350   355   360

Leu Leu Val Ala Phe Phe Ala Tyr Leu Val Ala His Ser Phe Leu
      365   370   375

Ser Val Phe Glu Thr Val Leu Asp Ala Leu Phe Leu Cys Phe Ala
      380   385   390

Val Asp Leu Glu Thr Asn Asp Gly Ser Ser Glu Lys Pro Tyr Phe
      395   400   405

Met Asp Gln Glu Phe Leu Ser Phe Val Lys Arg Ser Asn Lys Leu

Asn Asn Ala Arg Ala Gln Gln Asp Lys His Ser Leu Arg Asn Glu
                425   430   435

Glu Gly Thr Glu Leu Gln Ala Ile Val Arg
                440   445

<210> 178
<211> 2773
<212> DNA
<213> Homo sapiens

<400> 178
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aagggaaaaa gaatattcat tctgtgtggt gaaaattttt tgaaaaaaaa 150

attgccttct tcaaacaagg gtgtcattct gatatttatg aggactgttg 200

ttctcactat gaaggcatct gttattgaaa tgttccttgt tttgctggtg 250

actggagtac attcaaacaa agaaacggca aagaagatta aaaggcccaa 300

gttcactgtg cctcagatca actgcgatgt caaagccgga aagatcatcg 350

atcctgagtt cattgtgaaa tgtccagcag gatgccaaga ccccaaatac 400

catgtttatg gcactgacgt gtatgcatcc tactccagtg tgtgtggcgc 450

tgccgtacac agtggtgtgc ttgataattc aggagggaaa atacttgttc 500

ggaaggttgc tggacagtct ggttacaaag ggagttattc caacggtgtc 550

caatcgttat ccctaccacg atggagagaa tcctttatcg tcttagaaag 600

taaacccaaa aagggtgtaa cctacccatc agctcttaca tactcatcat 650

cgaaaagtcc agctgcccaa gcaggtgaga ccacaaaagc ctatcagagg 700

ccacctattc cagggacaac tgcacagccg gtcactctga tgcagcttct 750

ggctgtcact gtagctgtgg ccacccccac caccttgcca aggccatccc 800

cttctgctgc ttctaccacc agcatcccca gaccacaatc agtgggccac 850

aggagccagg agatggatct ctggtccact gccacctaca caagcagcca 900

aaacaggccc agagctgatc caggtatcca aaggcaagat ccttcaggag 950

ctgccttcca gaaacctgtt ggagcggatg tcagcctggg acttgttcca 1000

aaagaagaat tgagcacaca gtctttggag ccagtatccc tgggagatcc 1050

aaactgcaaa attgacttgt cgtttttaat tgatgggagc accagcattg 1100

gcaaacggcg attccgaatc cagaagcagc tcctggctga tgttgcccaa 1150

gctcttgaca ttggccctgc cggtccactg atgggtgttg tccagtatgg 1200

agacaaccct gctactcact ttaacctcaa gacacacacg aattctcgag 1250

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ggcccacgga caaagtggag gaggcttcaa gacttgcgag agagtcagga 1450

atcaacattt tcttcatcac cattgaaggt gctgctgaaa atgagaagca 1500

gtatgtggtg gagcccaact ttgcaaacaa ggccgtgtgc agaacaaacg 1550

gcttctactc gctccacgtg cagagctggt ttggcctcca caagaccctg 1600

cagcctctgg tgaagcgggt ctgcgacact gaccgcctgg cctgcagcaa 1650

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gtgtggggac gggcaacttc cgcaccgtcc tccagtttgt gaccaacctc 1750

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aaaataaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2700

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2750

aaaaaaaaaa aaaaaaaaaa aag 2773
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<210> 179

<211> 678
<212> PRT
<213> Homo sapiens

<400> 179
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Met Arg Thr Val Val Leu Thr Met Lys Ala Ser Val Ile Glu Met
  1               5                  10                      15

Phe Leu Val Leu Leu Val Thr Gly Val His Ser Asn Lys Glu Thr
                20                  25                      30

Ala Lys Lys Ile Lys Arg Pro Lys Phe Thr Val Pro Gln Ile Asn
                35                  40                      45

Cys Asp Val Lys Ala Gly Lys Ile Ile Asp Pro Glu Phe Ile Val
                50                  55                      60

Lys Cys Pro Ala Gly Cys Gln Asp Pro Lys Tyr His Val Tyr Gly
                65                  70                      75

Thr Asp Val Tyr Ala Ser Tyr Ser Ser Val Cys Gly Ala Ala Val
                80                  85                      90

His Ser Gly Val Leu Asp Asn Ser Gly Gly Lys Ile Leu Val Arg
                95                  100                     105

Lys Val Ala Gly Gln Ser Gly Tyr Lys Gly Ser Tyr Ser Asn Gly
                110                 115                     120

Val Gln Ser Leu Ser Leu Pro Arg Trp Arg Glu Ser Phe Ile Val
                125                 130                     135

Leu Glu Ser Lys Pro Lys Lys Gly Val Thr Tyr Pro Ser Ala Leu
                140                 145                     150

Thr Tyr Ser Ser Ser Lys Ser Pro Ala Ala Gln Ala Gly Glu Thr
                155                 160                     165

Thr Lys Ala Tyr Gln Arg Pro Pro Ile Pro Gly Thr Thr Ala Gln
                170                 175                     180

Pro Val Thr Leu Met Gln Leu Leu Ala Val Thr Val Ala Val Ala
                185                 190                     195

Thr Pro Thr Thr Leu Pro Arg Pro Ser Pro Ser Ala Ala Ser Thr
                200                 205                     210

Thr Ser Ile Pro Arg Pro Gln Ser Val Gly His Arg Ser Gln Glu
                215                 220                     225

Met Asp Leu Trp Ser Thr Ala Thr Tyr Thr Ser Ser Gln Asn Arg
                230                 235                     240

Pro Arg Ala Asp Pro Gly Ile Gln Arg Gln Asp Pro Ser Gly Ala
                245                 250                     255

Ala Phe Gln Lys Pro Val Gly Ala Asp Val Ser Leu Gly Leu Val
                260                 265                     270

Pro Lys Glu Glu Leu Ser Thr Gln Ser Leu Glu Pro Val Ser Leu
                275                 280                     285

Gly Asp Pro Asn Cys Lys Ile Asp Leu Ser Phe Leu Ile Asp Gly
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157

Ser Thr Ser Ile Gly Lys Arg Arg Phe Arg Ile Gln Lys Gln Leu
                305   310   315

Leu Ala Asp Val Ala Gln Ala Leu Asp· Ile Gly Pro Ala Gly Pro
                320   325   330

Leu Met Gly Val Val Gln Tyr Gly Asp Asn Pro Ala Thr His Phe
                335   340   345

Asn Leu Lys Thr His Thr Asn Ser Arg Asp Leu Lys Thr Ala Ile
                350   355   360

Glu Lys Ile Thr Gln Arg Gly Gly Leu Ser Asn Val Gly Arg Ala
                365   370   375

Ile Ser Phe Val Thr Lys Asn Phe Phe Ser Lys Ala Asn Gly Asn
                380   385   390

Arg Ser Gly Ala Pro Asn Val Val Val Val Met Val Asp Gly Trp
                395   400   405

Pro Thr Asp Lys Val Glu Glu Ala Ser Arg Leu Ala Arg Glu Ser
                410   415   420

Gly Ile Asn Ile Phe Phe Ile Thr Ile Glu Gly Ala Ala Glu Asn
                425   430   435

Glu Lys Gln Tyr Val Val Glu Pro Asn Phe Ala Asn Lys Ala Val
                440   445   450

Cys Arg Thr Asn Gly Phe Tyr Ser Leu His Val Gln Ser Trp Phe
                455   460   465

Gly Leu His Lys Thr Leu Gln Pro Leu Val Lys Arg Val Cys Asp
                470   475   480

Thr Asp Arg Leu Ala Cys Ser Lys Thr Cys Leu Asn Ser Ala Asp
                485   490   495

Ile Gly Phe Val Ile Asp Gly Ser Ser Ser Val Gly Thr Gly Asn
                500   505   510

Phe Arg Thr Val Leu Gln Phe Val Thr Asn Leu Thr Lys Glu Phe
                515   520   525

Glu Ile Ser Asp Thr Asp Thr Arg Ile Gly Ala Val Gln Tyr Thr
  .   530   535   540

Tyr Glu Gln Arg Leu Glu Phe Gly Phe Asp Lys Tyr Ser Ser Lys
                545   550   555

Pro Asp Ile Leu Asn Ala Ile Lys Arg Val Gly Tyr Trp Ser Gly
                560   565   570

Gly Thr Ser Thr Gly Ala Ala Ile Asn Phe Ala Leu Glu Gln Leu
                575   580   585

Phe Lys Lys Ser Lys Pro Asn Lys Arg Lys Leu Met Ile Leu Ile
                590   595   600

Thr Asp Gly Arg Ser Tyr Asp Asp Val Arg Ile Pro Ala Met Ala

Ala His Leu Lys Gly Val Ile Thr Tyr Ala Ile Gly Val Ala Trp
              620   625   630

Ala Ala Gln Glu Glu Leu Glu Val Ile Ala Thr His Pro Ala Arg
              635   .   640   645

Asp His Ser Phe Phe Val Asp Glu Phe Asp Asn Leu His Gln Tyr
              650   655   660

Val Pro Arg Ile Ile Gln Asn Ile Cys Thr Glu Phe Asn Ser Gln
              665   670   675

Pro Arg Asn

<210> 180
<211> 1759
<212> DNA
<213> Homo sapiens

<400> 180
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gcgctgctgc ctcagcacca tggtgcgcca ggtcccgacg gctccgcgcc 150

agatcccgcc cactacagtt tttctctgac tctaattgat gcactggaca 200

ccttgctgat tttgggggaat gtctcagaat tccaaagagt ggttgaagtg 250

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aacaaacatt cgagtggtag gaggactcct gtctgctcat ctgctctcca 350

agaaggctgg ggtggaagta gaggctggat ggccctgttc cgggcctctc 400

ctgagaatgg ctgaggaggc ggcccgaaaa ctcctcccag cctttcagac 450

ccccactggc atgccatatg aacagtgaa cttacttcat ggcgtgaacc 500

caggagagac ccctgtcacc tgtacggcag ggattgggac cttcattgtt 550

gaatttgcca ccctgagcag cctcactggt gacccggtgt cgaagatgt 600

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cagatgtaca aggggactgt gtccatgcca gtcttccagt ccttggaggc 900

ctactggcct ggtcttcaga gcctcattgg agacattgac aatgccatga 950

ggaccttcct caactactac actgtatgga agcagtttgg ggggctcccg 1000

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gaattctaca acattcctca gggatacaca gtggagaagc gagagggcta 1050

cccacttcgg ccagaactta ttgaaagcgc aatgtacctc taccgtgcca 1100

cgggggatcc caccctccta gaactcggaa gagatgctgt ggaatccatt 1150

gaaaaaatca gcaaggtgga gtgcggattt gcaacaatca aagatctgcg 1200

agaccacaag ctggacaacc gcatggagtc gttcttcctg gccgagactg 1250

tgaaatacct ctacctcctg tttgacccaa ccaacttcat ccacaacaat 1300

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tcttctcacc agaaaaccat gaccaggcaa gggagaggaa gcctgccaaa 1600

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<210> 181
<211> 541
<212> PRT
<213> Homo sapiens

<400> 181

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Met Pro Phe Arg Leu Leu Ile Pro Leu Gly Leu Leu Cys Ala Leu
 1               5                  10                  15

Leu Pro Gln His His Gly Ala Pro Gly Pro Asp Gly Ser Ala Pro
                20                  25                  30

Asp Pro Ala His Tyr Ser Phe Ser Leu Thr Leu Ile Asp Ala Leu
                35                  40                  45

Asp Thr Leu Leu Ile Leu Gly Asn Val Ser Glu Phe Gln Arg Val
                50                  55                  60

Val Glu Val Leu Gln Asp Ser Val Asp Phe Asp Ile Asp Val Asn
                65                  70                  75

Ala Ser Val Phe Glu Thr Asn Ile Arg Val Val Gly Gly Leu Leu
                80                  85                  90

Ser Ala His Leu Leu Ser Lys Lys Ala Gly Val Glu Val Glu Ala
                95                 100                 105

Gly Trp Pro Cys Ser Gly Pro Leu Leu Arg Met Ala Glu Glu Ala
               110                 115                 120

Ala Arg Lys Leu Leu Pro Ala Phe Gln Thr Pro Thr Gly Met Pro
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160

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            125                 130                 135
Tyr Gly Thr Val Asn Leu Leu His Gly Val Asn Pro Gly Glu Thr
            140                 145                 150
Pro Val Thr Cys Thr Ala Gly Ile Gly Thr Phe Ile Val Glu Phe
            155                 160                 165
Ala Thr Leu Ser Ser Leu Thr Gly Asp Pro Val Phe Glu Asp Val
            170                 175                 180
Ala Arg Val Ala Leu Met Arg Leu Trp Glu Ser Arg Ser Asp Ile
            185                 190                 195
Gly Leu Val Gly Asn His Ile Asp Val Leu Thr Gly Lys Trp Val
            200                 205                 210
Ala Gln Asp Ala Gly Ile Gly Ala Gly Val Asp Ser Tyr Phe Glu
            215                 220                 225
Tyr Leu Val Lys Gly Ala Ile Leu Leu Gln Asp Lys Lys Leu Met
            230                 235                 240
Ala Met Phe Leu Glu Tyr Asn Lys Ala Ile Arg Asn Tyr Thr Arg
            245                 250                 255
Phe Asp Asp Trp Tyr Leu Trp Val Gln Met Tyr Lys Gly Thr Val
            260                 265                 270
Ser Met Pro Val Phe Gln Ser Leu Glu Ala Tyr Trp Pro Gly Leu
            275                 280                 285
Gln Ser Leu Ile Gly Asp Ile Asp Asn Ala Met Arg Thr Phe Leu
            290                 295                 300
Asn Tyr Tyr Thr Val Trp Lys Gln Phe Gly Gly Leu Pro Glu Phe
            305                 310                 315
Tyr Asn Ile Pro Gln Gly Tyr Thr Val Glu Lys Arg Glu Gly Tyr
            320                 325                 330
Pro Leu Arg Pro Glu Leu Ile Glu Ser Ala Met Tyr Leu Tyr Arg
            335                 340                 345
Ala Thr Gly Asp Pro Thr Leu Leu Glu Leu Gly Arg Asp Ala Val
            350                 355                 360
Glu Ser Ile Glu Lys Ile Ser Lys Val Glu Cys Gly Phe Ala Thr
            365                 370                 375
Ile Lys Asp Leu Arg Asp His Lys Leu Asp Asn Arg Met Glu Ser
            380                 385                 390
Phe Phe Leu Ala Glu Thr Val Lys Tyr Leu Tyr Leu Leu Phe Asp
            395                 400                 405
Pro Thr Asn Phe Ile His Asn Asn Gly Ser Thr Phe Asp Ala Val
            410                 415                 420
Ile Thr Pro Tyr Gly Glu Cys Ile Leu Gly Ala Gly Gly Tyr Ile
            425                 430                 435
Phe Asn Thr Glu Ala His Pro Ile Asp Leu Ala Ala Leu His Cys
```

```
            440                 445                 450
Cys Gln Arg Leu Lys Glu Glu Gln Trp Glu Val Glu Asp Leu Met
                455                 460                 465
Arg Glu Phe Tyr Ser Leu Lys Arg Ser Arg Ser Lys Phe Gln Lys
                470                 475                 480
Asn Thr Val Ser Ser Gly Pro Trp Glu Pro Pro Ala Arg Pro Gly
                485                 490                 495
Thr Leu Phe Ser Pro Glu Asn His Asp Gln Ala Arg Glu Arg Lys
                500                 505                 510
Pro Ala Lys Gln Lys Val Pro Leu Leu Ser Cys Pro Ser Gln Pro
                515                 520                 525
Phe Thr Ser Lys Leu Ala Leu Leu Gly Gln Val Phe Leu Asp Ser
                530                 535                 540
Ser
```

<210> 182
<211> 2056
<212> DNA
<213> Homo sapiens

<400> 182

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catctgggtt tgggcagaaa ggagggtgct tcggagcccg cccttctga 100

gcttcctggg ccggctctag aacaattcag gcttcgctgc gactcagacc 150

tcagctccaa catatgcatt ctgaagaaag atggctgaga tggacagaat 200

gctttatttt ggaaagaaac aatgttctag gtcaaactga gtctaccaaa 250

tgcagacttt cacaatggtt ctagaagaaa tctggacaag tcttttcatg 300

tggtttttct acgcattgat tccatgtttg ctcacagatg aagtggccat 350

tctgcctgcc cctcagaacc tctctgtact ctcaaccaac atgaagcatc 400

tcttgatgtg gagcccagtg atcgcgcctg gagaaacagt gtactattct 450

gtcgaatacc aggggagta cgagagcctg tacacgagcc acatctggat 500

ccccagcagc tggtgctcac tcactgaagg tcctgagtgt gatgtcactg 550

atgacatcac ggccactgtg ccatacaacc ttcgtgtcag ggccacattg 600

ggctcacaga cctcagcctg gagcatcctg aagcatccct ttaatagaaa 650

ctcaaccatc cttacccgac ctgggatgga gatcaccaaa gatggcttcc 700

acctggttat tgagctggag gacctggggc cccagtttga gttccttgtg 750

gcctactgga ggagggagcc tggtgccgag aacatgtca aaatggtgag 800

gagtgggggt attccagtgc acctagaaac catggagcca ggggctgcat 850
```

162

```
actgtgtgaa ggcccagaca ttcgtgaagg ccattgggag gtacagcgcc 900

ttcagccaga cagaatgtgt ggaggtgcaa ggagaggcca ttcccctggt 950

actggccctg tttgcctttg ttggcttcat gctgatcctt gtggtcgtgc 1000

cactgttcgt ctggaaaatg ggccggctgc tccagtactc ctgttgcccc 1050

gtggtggtcc tcccagacac cttgaaaata accaattcac cccagaagtt 1100

aatcagctgc agaagggagg aggtggatgc ctgtgccacg gctgtgatgt 1150

ctcctgagga actcctcagg gcctggatct cataggtttg cggaagggcc 1200

caggtgaagc cgagaacctg gtctgcatga catggaaacc atgagggggac 1250

aagttgtgtt tctgtttttcc gccacggaca agggatgaga gaagtaggaa 1300

gagcctgttg tctacaagtc tagaagcaac catcagaggc agggtggttt 1350

gtctaacaga acactgactg aggcttaggg gatgtgacct ctagactggg 1400

ggctgccact tgctggctga gcaaccctgg gaaaagtgac ttcatcccctt 1450

cggtcctaag ttttctcatc tgtaatgggg gaattaccta cacacctgct 1500

aaacacacac acacagagtc tctctctata tatacacacg tacacataaa 1550

tacacccagc acttgcaagg ctagagggaa actggtgaca ctctacagtc 1600

tgactgattc agtgtttctg gagagcagga cataaatgta tgatgagaat 1650

gatcaaggac tctacacact gggtggcttg gagagcccac tttcccagaa 1700

taatccttga gagaaaagga atcatgggag caatggtgtt gagttcactt 1750

caagcccaat gccggtgcag aggggaatgg cttagcgagc tctacagtag 1800

gtgacctgga ggaaggtcac agccacactg aaaatgggat gtgcatgaac 1850

acggaggatc catgaactac tgtaaagtgt tgacagtgtg tgcacactgc 1900

agacagcagg tgaaatgtat gtgtgcaatg cgacgagaat gcagaagtca 1950

gtaacatgtg catgtttgtt gtgctccttt tttctgttgg taaagtacag 2000

aattcagcaa ataaaaaggg ccaccctggc caaaagcggt aaaaaaaaaa 2050

aaaaaa 2056
```

<210> 183
<211> 311
<212> PRT
<213> Homo sapiens

<220>
<221> Signal peptide
<222> 1-29
<223> Signal peptide

<220>
<221> N-glycosylation sites
<222> 40-43, 134-137

<223> N-glycosylation sites.

<220>
<221> Tissue factor proteins homology
<222> 92-119
<223> Tissue factor proteins homology

<220>
<221> Transmembrane domain
<222> 230-255
<223> Transmembrane domain

<220>
<221> Integrins alpha chain protein homology
<222> 232-262
<223> Integrins alpha chain protein homology

<400> 183
```
Met Gln Thr Phe Thr Met Val Leu Glu Glu Ile Trp Thr Ser Leu
  1               5                  10                  15

Phe Met Trp Phe Phe Tyr Ala Leu Ile Pro Cys Leu Leu Thr Asp
               20                  25                  30

Glu Val Ala Ile Leu Pro Ala Pro Gln Asn Leu Ser Val Leu Ser
               35                  40                  45

Thr Asn Met Lys His Leu Leu Met Trp Ser Pro Val Ile Ala Pro
               50                  55                  60

Gly Glu Thr Val Tyr Tyr Ser Val Glu Tyr Gln Gly Glu Tyr Glu
               65                  70                  75

Ser Leu Tyr Thr Ser His Ile Trp Ile Pro Ser Ser Trp Cys Ser
               80                  85                  90

Leu Thr Glu Gly Pro Glu Cys Asp Val Thr Asp Asp Ile Thr Ala
               95                 100                 105

Thr Val Pro Tyr Asn Leu Arg Val Arg Ala Thr Leu Gly Ser Gln
              110                 115                 120

Thr Ser Ala Trp Ser Ile Leu Lys His Pro Phe Asn Arg Asn Ser
              125                 130                 135

Thr Ile Leu Thr Arg Pro Gly Met Glu Ile Thr Lys Asp Gly Phe
              140                 145                 150

His Leu Val Ile Glu Leu Glu Asp Leu Gly Pro Gln Phe Glu Phe
              155                 160                 165

Leu Val Ala Tyr Trp Arg Arg Glu Pro Gly Ala Glu Glu His Val
              170                 175                 180

Lys Met Val Arg Ser Gly Gly Ile Pro Val His Leu Glu Thr Met
              185                 190                 195

Glu Pro Gly Ala Ala Tyr Cys Val Lys Ala Gln Thr Phe Val Lys
              200                 205                 210

Ala Ile Gly Arg Tyr Ser Ala Phe Ser Gln Thr Glu Cys Val Glu
              215                 220                 225
```

164

```
Val Gln Gly Glu Ala Ile Pro Leu Val Leu Ala Leu Phe Ala Phe
             230                 235                 240

Val Gly Phe Met Leu Ile Leu Val Val Val Pro Leu Phe Val Trp
             245                 250                 255

Lys Met Gly Arg Leu Leu Gln Tyr Ser Cys Cys Pro Val Val Val
             260                 265                 270

Leu Pro Asp Thr Leu Lys Ile Thr Asn Ser Pro Gln Lys Leu Ile
             275                 280                 285

Ser Cys Arg Arg Glu Glu Val Asp Ala Cys Ala Thr Ala Val Met
             290                 295                 300

Ser Pro Glu Glu Leu Leu Arg Ala Trp Ile Ser
             305                 310
```

<210> 184
<211> 808
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 654, 711, 748
<223> unknown base

<400> 184

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tcctgctgat gcacatctgg gtttggcaaa aggaggttgc ttcgagccgc 50

cctttctagc ttcctggccg gctctagaac aattcaggct tcgctgcgca 100

tagacctcag ctccaacata tgcattctga agaaagatgg ctgagatgac 150

agaatgcttt attttggaaa gaaacaatgt tctaggtcaa actgagtcta 200

ccaaatgcag actttcacaa tggttctaga agaaatctgg acaagtcttt 250

tcatgtggtt tttctacgca ttgattccat gtttgctcac agatgaagtg 300

gccattctgc ctgcccctca gaacctctct gtactctcaa ccaacatgaa 350

gcatctcttg atgtggagcc cagtgatcgc gcctggagaa acagtgtact 400

attctgtcga ataccagggg gagtacgaga gcctgtacac gagccacatc 450

tggatcccca gcagctggtg ctcactcact gaaggtcctg agtgtgatgt 500

cactgatgac atcacggcca ctgtgccata caacctttgt gtcagggcca 550

cattgggctc acagacctca gcctggagca tcctgaagca tcccttttaat 600

agaaactcaa ccatccttac ccgacctggg atggagatca ccaaagatgg 650

cttncacctg gttattgagc tggaggacct ggggccccag tttgagttcc 700

ttgtggccta ntggaggagg ggcgaacccc ttgcggcgca aggggttngc 750

gaaccccttg cggccgctgg ggtatctctc gagaaaagag aggcccaata 800

tgacccac 808
```

165

<210> 185
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 185
 aggcttcgct gcgactagac ctc 23

<210> 186
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 186
 ccaggtcggg taaggatggt tgag 24

<210> 187
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 187
 tttctacgca ttgattccat gtttgctcac agatgaagtg gccattctgc 50

<210> 188
<211> 1227
<212> DNA
<213> Homo sapiens

<400> 188
 cggacgcgtg ggccgccacc tccggaacaa gccatggtgg cggcgacggt 50

 ggcagcggcg tggctgctcc tgtgggctgc ggcctgcgcg cagcaggagc 100

 aggacttcta cgacttcaag gcggtcaaca tccgggggcaa actggtgtcg 150

 ctggagaagt accgcggatc ggtgtccctg gtggtgaatg tggccagcga 200

 gtgcggcttc acagaccagc actaccgagc cctgcagcag ctgcagcgag 250

 acctgggccc ccaccacttt aacgtgctcg ccttcccctg caaccagttt 300

 ggccaacagg agcctgacag caacaaggag attgagagct ttgcccgccg 350

 cacctacagt gtctcattcc ccatgtttag caagattgca gtcaccggta 400

 ctggtgccca tcctgccttc aagtacctgg cccagacttc tgggaaggag 450

 cccacctgga acttctggaa gtacctagta gccccagatg gaaaggtggt 500

 aggggcttgg gacccaactg tgtcagtgga ggaggtcaga ccccagatca 550

 cagcgctcgt gaggaagctc atcctactga agcgagaaga cttataacca 600

```
ccgcgtctcc tcctccacca cctcatcccg cccacctgtg tggggctgac 650

caatgcaaac tcaaatggtg cttcaaaggg agagacccac tgactctcct 700

tcctttactc ttatgccatt ggtcccatca ttcttgtggg ggaaaaattc 750

tagtattttg attatttgaa tcttacagca acaaatagga actcctggcc 800

aatgagagct cttgaccagt gaatcaccag ccgatacgaa cgtcttgcca 850

acaaaaatgt gtggcaaata gaagtatatc aagcaataat ctcccaccca 900

aggcttctgt aaactgggac caatgattac ctcatagggc tgttgtgagg 950

attaggatga aataccgtg aaagtgccta ggcagtgcca gccaaatagg 1000

aggcattcaa tgaacatttt ttgcatataa accaaaaaat aacttgttat 1050

caataaaaac ttgcatccaa catgaatttc cagccgatga taatccaggc 1100

caaaggttta gttgttgtta tttcctctgt attattttct tcattacaaa 1150

agaaatgcaa gttcattgta acaatccaaa caatacctca cgatataaaa 1200

taaaaatgaa agtatcctcc tcaaaaa 1227
```

<210> 189
<211> 187
<212> PRT
<213> Homo sapiens

<400> 189

```
Met Val Ala Ala Thr Val Ala Ala Ala Trp Leu Leu Leu Trp Ala
 1               5                  10                  15

Ala Ala Cys Ala Gln Gln Glu Gln Asp Phe Tyr Asp Phe Lys Ala
            20                  25                  30

Val Asn Ile Arg Gly Lys Leu Val Ser Leu Glu Lys Tyr Arg Gly
            35                  40                  45

Ser Val Ser Leu Val Val Asn Val Ala Ser Glu Cys Gly Phe Thr
            50                  55                  60

Asp Gln His Tyr Arg Ala Leu Gln Gln Leu Gln Arg Asp Leu Gly
            65                  70                  75

Pro His His Phe Asn Val Leu Ala Phe Pro Cys Asn Gln Phe Gly
            80                  85                  90

Gln Gln Glu Pro Asp Ser Asn Lys Glu Ile Glu Ser Phe Ala Arg
            95                  100                 105

Arg Thr Tyr Ser Val Ser Phe Pro Met Phe Ser Lys Ile Ala Val
            110                 115                 120

Thr Gly Thr Gly Ala His Pro Ala Phe Lys Tyr Leu Ala Gln Thr
            125                 130                 135

Ser Gly Lys Glu Pro Thr Trp Asn Phe Trp Lys Tyr Leu Val Ala
            140                 145                 150

Pro Asp Gly Lys Val Val Gly Ala Trp Asp Pro Thr Val Ser Val
```

167

Glu Glu Val Arg Pro Gln Ile Thr Ala Leu Val Arg Lys Leu Ile
                    170   175   180

Leu Leu Lys Arg Glu Asp Leu
                    185

<210> 190
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 190
 gcaggacttc tacgacttca aggc 24

<210> 191
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 191
 agtctgggcc aggtacttga aggc 24

<210> 192
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 192
 caacatccgg ggcaaactgg tgtcgctgga gaagtaccgc ggatcggtgt 50

<210> 193
<211> 2187
<212> DNA
<213> Homo sapiens

<400> 193
 cggacgcgtg ggcgggccgg gacgcagggc aaagcgagcc atggctgtct 50

 acgtcgggat gctgcgcctg gggaggctgt gcgccgggag ctcgggggtg 100

 ctgggggccc gggccgccct ctctcggagt tggcaggaag ccaggttgca 150

 gggtgtccgc ttcctcagtt ccagagaggt ggatcgcatg gtctccacgc 200

 ccatcggagg cctcagctac gttcaggggt gcaccaaaaa gcatcttaac 250

 agcaagactg tgggccagtg cctggagacc acagcacaga gggtcccaga 300

 acgagaggcc ttggtcgtcc tccatgaaga cgtcaggttg acctttgccc 350

 aactcaagga ggaggtggac aaagctgctt ctggcctcct gagcattggc 400

```
ctctgcaaag gtgaccggct gggcatgtgg ggacctaact cctatgcatg 450

ggtgctcatg cagttggcca ccgcccaggc gggcatcatt ctggtgtctg 500

tgaacccagc ctaccaggct atggaactgg agtatgtcct caagaaggtg 550

ggctgcaagg cccttgtgtt ccccaagcaa ttcaagaccc agcaatacta 600

caacgtcctg aagcagatct gtccagaagt ggagaatgcc cagccagggg 650

ccttgaagag tcagaggctc ccagatctga ccacagtcat ctcggtggat 700

gcccctttgc cggggaccct gctcctggat gaagtggtgg cggctggcag 750

cacacggcag catctggacc agctccaata caaccagcag ttcctgtcct 800

gccatgaccc catcaacatc cagttcacct cggggacaac aggcagcccc 850

aagggggcca ccctctccca ctacaacatt gtcaacaact ccaacatttt 900

aggagagcgc ctgaaactgc atgagaagac accagagcag ttgcggatga 950

tcctgcccaa cccccctgtac cattgcctgg gttccgtggc aggcacaatg 1000

atgtgtctga tgtacggtgc caccctcatc ctggcctctc ccatcttcaa 1050

tggcaagaag gcactggagg ccatcagcag agagagaggc accttcctgt 1100

atggtacccc cacgatgttc gtggacattc tgaaccagcc agacttctcc 1150

agttatgaca tctcgaccat gtgtggaggt gtcattgctg ggtcccctgc 1200

acctccagag ttgatccgag ccatcatcaa caagataaat atgaaggacc 1250

tggtggttgc ttatggaacc acagagaaca gtcccgtgac attcgcgcac 1300

ttccctgagg acactgtgga gcagaaggca gaaagcgtgg gcagaattat 1350

gcctcacacg gaggcccgga tcatgaacat ggaggcaggg acgctggcaa 1400

agctgaacac gcccggggag ctgtgcatcc gagggtactg cgtcatgctg 1450

ggctactggg gtgagcctca gaagacagag gaagcagtgg atcaggacaa 1500

gtggtattgg acaggagatg tcgccacaat gaatgagcag ggcttctgca 1550

agatcgtggg ccgctctaag gatatgatca tccgggggtgg tgagaacatc 1600

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agtgcaggtg gtgggagtga aggacgatcg gatgggggaa gagatttgtg 1700

cctgcattcg gctgaaggac ggggaggaga ccacggtgga ggagataaaa 1750

gctttctgca aagggaagat ctctcacttc aagattccga agtacatcgt 1800

gtttgtcaca aactacccce tcaccatttc aggaaagatc cagaaattca 1850

aacttcgaga gcagatggaa cgacatctaa atctgtgaat aaagcagcag 1900

gcctgtcctg gccggttggc ttgactctct cctgtcagaa tgcaacctgg 1950

ctttatgcac ctagatgtcc ccagcaccca gttctgagcc aggcacatca 2000
```

169

```
aatgtcaagg aattgactga acgaactaag agctcctgga tgggtccggg 2050

aactcgcctg ggcacaaggt gccaaaaggc aggcagcctg cccaggccct 2100

ccctcctgtc catcccccac attcccctgt ctgtccttgt gatttggcat 2150

aaagagcttc tgttttcttt gaaaaaaaaa aaaaaaa 2187
```

<210> 194
<211> 615
<212> PRT
<213> Homo sapiens

<400> 194

```
Met Ala Val Tyr Val Gly Met Leu Arg Leu Gly Arg Leu Cys Ala
 1               5                   10                  15

Gly Ser Ser Gly Val Leu Gly Ala Arg Ala Ala Leu Ser Arg Ser
                20                  25                  30

Trp Gln Glu Ala Arg Leu Gln Gly Val Arg Phe Leu Ser Ser Arg
                35                  40                  45

Glu Val Asp Arg Met Val Ser Thr Pro Ile Gly Gly Leu Ser Tyr
                50                  55                  60

Val Gln Gly Cys Thr Lys Lys His Leu Asn Ser Lys Thr Val Gly
                65                  70                  75

Gln Cys Leu Glu Thr Thr Ala Gln Arg Val Pro Glu Arg Glu Ala
                80                  85                  90

Leu Val Val Leu His Glu Asp Val Arg Leu Thr Phe Ala Gln Leu
                95                  100                 105

Lys Glu Glu Val Asp Lys Ala Ala Ser Gly Leu Leu Ser Ile Gly
                110                 115                 120

Leu Cys Lys Gly Asp Arg Leu Gly Met Trp Gly Pro Asn Ser Tyr
                125                 130                 135

Ala Trp Val Leu Met Gln Leu Ala Thr Ala Gln Ala Gly Ile Ile
                140                 145                 150

Leu Val Ser Val Asn Pro Ala Tyr Gln Ala Met Glu Leu Glu Tyr
                155                 160                 165

Val Leu Lys Lys Val Gly Cys Lys Ala Leu Val Phe Pro Lys Gln
                170                 175                 180

Phe Lys Thr Gln Gln Tyr Tyr Asn Val Leu Lys Gln Ile Cys Pro
                185                 190                 195

Glu Val Glu Asn Ala Gln Pro Gly Ala Leu Lys Ser Gln Arg Leu
                200                 205                 210

Pro Asp Leu Thr Thr Val Ile Ser Val Asp Ala Pro Leu Pro Gly
                215                 220                 225

Thr Leu Leu Leu Asp Glu Val Val Ala Ala Gly Ser Thr Arg Gln
                230                 235                 240

His Leu Asp Gln Leu Gln Tyr Asn Gln Gln Phe Leu Ser Cys His
```

170

```
                245                 250                 255

Asp Pro Ile Asn Ile Gln Phe Thr Ser Gly Thr Thr Gly Ser Pro
                260                 265                 270

Lys Gly Ala Thr Leu Ser His Tyr Asn Ile Val Asn Asn Ser Asn
                275                 280                 285

Ile Leu Gly Glu Arg Leu Lys Leu His Glu Lys Thr Pro Glu Gln
                290                 295                 300

Leu Arg Met Ile Leu Pro Asn Pro Leu Tyr His Cys Leu Gly Ser
                305                 310                 315

Val Ala Gly Thr Met Met Cys Leu Met Tyr Gly Ala Thr Leu Ile
                320                 325                 330

Leu Ala Ser Pro Ile Phe Asn Gly Lys Lys Ala Leu Glu Ala Ile
                335                 340                 345

Ser Arg Glu Arg Gly Thr Phe Leu Tyr Gly Thr Pro Thr Met Phe
                350                 355                 360

Val Asp Ile Leu Asn Gln Pro Asp Phe Ser Ser Tyr Asp Ile Ser
                365                 370                 375

Thr Met Cys Gly Gly Val Ile Ala Gly Ser Pro Ala Pro Pro Glu
                380                 385                 390

Leu Ile Arg Ala Ile Ile Asn Lys Ile Asn Met Lys Asp Leu Val
                395                 400                 405

Val Ala Tyr Gly Thr Thr Glu Asn Ser Pro Val Thr Phe Ala His
                410                 415                 420

Phe Pro Glu Asp Thr Val Glu Gln Lys Ala Glu Ser Val Gly Arg
                425                 430                 435

Ile Met Pro His Thr Glu Ala Arg Ile Met Asn Met Glu Ala Gly
                440                 445                 450

Thr Leu Ala Lys Leu Asn Thr Pro Gly Glu Leu Cys Ile Arg Gly
                455                 460                 465

Tyr Cys Val Met Leu Gly Tyr Trp Gly Glu Pro Gln Lys Thr Glu
                470                 475                 480

Glu Ala Val Asp Gln Asp Lys Trp Tyr Trp Thr Gly Asp Val Ala
                485                 490                 495

Thr Met Asn Glu Gln Gly Phe Cys Lys Ile Val Gly Arg Ser Lys
                500                 505                 510

Asp Met Ile Ile Arg Gly Gly Glu Asn Ile Tyr Pro Ala Glu Leu
                515                 520                 525

Glu Asp Phe Phe His Thr His Pro Lys Val Gln Glu Val Gln Val
                530                 535                 540

Val Gly Val Lys Asp Asp Arg Met Gly Glu Glu Ile Cys Ala Cys
                545                 550                 555

Ile Arg Leu Lys Asp Gly Glu Glu Thr Thr Val Glu Glu Ile Lys

                         171
```

Ala Phe Cys Lys Gly Lys Ile Ser His Phe Lys Ile Pro Lys Tyr
                575   580   585

Ile Val Phe Val Thr Asn Tyr Pro Leu Thr Ile Ser Gly Lys Ile
                590   595   600

Gln Lys Phe Lys Leu Arg Glu Gln Met Glu Arg His Leu Asn Leu
                605   610   615

<210> 195
<211> 642
<212> DNA
<213> Homo sapiens

<400> 195
 caactccaac attttaggag agcgcctgaa actgcatgag aagacaccag 50

 agcagttgcg gatgatcctg cccaaccccc tgtaccattg cctgggttcc 100

 gtggcaggca caatgatgtg tctgatgtac ggtgccaccc tcatcctggc 150

 ctctcccatc ttcaatggca agaaggcact ggaggccatc agcagagaga 200

 gaggcacctt cctgtatggt acccccacga tgttcgtgga cattctgaac 250

 cagccagact ctccagtta tgacatctcg accatgtgtg gaggtgtcat 300

 tgctgggtcc cctgcacctc cagagttgat ccgagccatc atcaacaaga 350

 taaatatgaa ggacctggtg gttgcttatg gaaccacaga gaacagtccc 400

 gtgacattcg cgcacttccc tgaggacact gtggagcaga aggcagaaag 450

 cgtgggcaga attatgcctc acacggaggc gcggatcatg aacatggagg 500

 cagggacgct ggcaaagctg aacacgcccg gggagctgtg catccgaggg 550

 tactgcgtca tgctgggcta ctggggtgag cctcagaaga cagaggaagc 600

 agtggatcag gacaagtggt attggacagg agatgtcgcc ac 642

<210> 196
<211> 1575
<212> DNA
<213> Homo sapiens

<400> 196
 gagcaggacg gagccatgga ccccgccagg aaagcaggtg cccaggccat 50

 gatctggact gcaggctggc tgctgctgct gctgcttcgc ggaggagcgc 100

 aggccctgga gtgctacagc tgcgtgcaga aagcagatga cggatgctcc 150

 ccgaacaaga tgaagacagt gaagtgcgcg ccgggcgtgg acgtctgcac 200

 cgaggccgtg ggggcggtgg agaccatcca cggacaattc tcgctggcag 250

 tgcggggttg cggttcggga ctccccggca agaatgaccg cggcctggat 300

 cttcacgggc ttctggcgtt catccagctg cagcaatgcg ctcaggatcg 350

```
ctgcaacgcc aagctcaacc tcaactcgcg ggcgctcgac ccggcaggta 400

atgagagtgc atacccgccc aacggcgtgg agtgctacag ctgtgtgggc 450

ctgagccggg aggcgtgcca gggtacatcg ccgccggtcg tgagctgcta 500

caacgccagc gatcatgtct acaagggctg cttcgacggc aacgtcacct 550

tgacggcagc taatgtgact gtgtccttgc ctgtccgggg ctgtgtccag 600

gatgaattct gcactcggga tggagtaaca ggcccagggt tcacgctcag 650

tggctcctgt tgccaggggt cccgctgtaa ctctgacctc cgcaacaaga 700

cctacttctc ccctcgaatc ccaccccttg tccggctgcc ccctccagag 750

cccacgactg tggcctcaac cacatctgtc accacttcta cctcggcccc 800

agtgagaccc acatccacca ccaaacccat gccagcgcca accagtcaga 850

ctccgagaca gggagtagaa cacgaggcct cccgggatga ggagcccagg 900

ttgactggag gcgccgctgg ccaccaggac cgcagcaatt cagggcagta 950

tcctgcaaaa gggggcccc agcagcccca taataaaggc tgtgtggctc 1000

ccacagctgg attggcagcc cttctgttgg ccgtggctgc tggtgtccta 1050

ctgtgagctt ctccacctgg aaatttccct ctcacctact tctctggccc 1100

tgggtacccc tcttctcatc acttcctgtt cccaccactg gactgggctg 1150

gcccagcccc tgttttttcca acattcccca gtatccccag cttctgctgc 1200

gctggtttgc ggctttggga aataaaatac cgttgtatat attctgccag 1250

gggtgttcta gcttttttgag gacagctcct gtatccttct catccttgtc 1300

tctccgcttg tcctcttgtg atgttaggac agagtgagag aagtcagctg 1350

tcacgggaa ggtgagagag aggatgctaa gcttcctact cactttctcc 1400

tagccagcct ggactttgga gcgtggggtg ggtgggacaa tggctcccca 1450

ctctaagcac tgcctcccct actccccgca tctttgggga atcggttccc 1500

catatgtctt ccttactaga ctgtgagctc ctcgaggggg ggcccggtac 1550

ccaattcgcc ctatagtgag tcgta 1575
```

<210> 197
<211> 346
<212> PRT
<213> Homo sapiens

<400> 197

```
Met Asp Pro Ala Arg Lys Ala Gly Ala Gln Ala Met Ile Trp Thr
 1               5                  10                      15

Ala Gly Trp Leu Leu Leu Leu Leu Arg Gly Gly Ala Gln Ala
                20                  25                  30

Leu Glu Cys Tyr Ser Cys Val Gln Lys Ala Asp Asp Gly Cys Ser
```

```
Pro Asn Lys Met Lys Thr Val Lys Cys Ala Pro Gly Val Asp Val
                50                    55                    60
Cys Thr Glu Ala Val Gly Ala Val Glu Thr Ile His Gly Gln Phe
                65                    70                    75
Ser Leu Ala Val Arg Gly Cys Gly Ser Gly Leu Pro Gly Lys Asn
                80                    85                    90
Asp Arg Gly Leu Asp Leu His Gly Leu Leu Ala Phe Ile Gln Leu
                95                   100                   105
Gln Gln Cys Ala Gln Asp Arg Cys Asn Ala Lys Leu Asn Leu Thr
               110                   115                   120
Ser Arg Ala Leu Asp Pro Ala Gly Asn Glu Ser Ala Tyr Pro Pro
               125                   130                   135
Asn Gly Val Glu Cys Tyr Ser Cys Val Gly Leu Ser Arg Glu Ala
               140                   145                   150
Cys Gln Gly Thr Ser Pro Pro Val Val Ser Cys Tyr Asn Ala Ser
               155                   160                   165
Asp His Val Tyr Lys Gly Cys Phe Asp Gly Asn Val Thr Leu Thr
               170                   175                   180
Ala Ala Asn Val Thr Val Ser Leu Pro Val Arg Gly Cys Val Gln
               185                   190                   195
Asp Glu Phe Cys Thr Arg Asp Gly Val Thr Gly Pro Gly Phe Thr
               200                   205                   210
Leu Ser Gly Ser Cys Cys Gln Gly Ser Arg Cys Asn Ser Asp Leu
               215                   220                   225
Arg Asn Lys Thr Tyr Phe Ser Pro Arg Ile Pro Pro Leu Val Arg
               230                   235                   240
Leu Pro Pro Pro Glu Pro Thr Thr Val Ala Ser Thr Thr Ser Val
               245                   250                   255
Thr Thr Ser Thr Ser Ala Pro Val Arg Pro Thr Ser Thr Thr Lys
               260                   265                   270
Pro Met Pro Ala Pro Thr Ser Gln Thr Pro Arg Gln Gly Val Glu
               275                   280                   285
His Glu Ala Ser Arg Asp Glu Glu Pro Arg Leu Thr Gly Gly Ala
               290                   295                   300
Ala Gly His Gln Asp Arg Ser Asn Ser Gly Gln Tyr Pro Ala Lys
               305                   310                   315
Gly Gly Pro Gln Gln Pro His Asn Lys Gly Cys Val Ala Pro Thr
               320                   325                   330
Ala Gly Leu Ala Ala Leu Leu Leu Ala Val Ala Ala Gly Val Leu
               335                   340                   345
```

Leu

<210> 198
<211> 1657
<212> DNA
<213> Homo sapiens

<400> 198
cgggactcgg cgggtcctcc tgggagtctc ggaggggacc ggctgtgcag 50

acgccatgga gttggtgctg gtcttcctct gcagcctgct ggcccccatg 100

gtcctggcca gtgcagctga aaaggagaag gaaatggacc cttttcatta 150

tgattaccag accctgagga ttggggggact ggtgttcgct gtggtcctct 200

tctcggttgg gatcctcctt atcctaagtc gcaggtgcaa gtgcagtttc 250

aatcagaagc cccgggcccc aggagatgag gaagcccagg tggagaacct 300

catcaccgcc aatgcaacag agccccagaa gcagagaact gaagtgcagc 350

catcaggtgg aagcctctgg aacctgaggc ggctgcttga acctttggat 400

gcaaatgtcg atgcttaaga aaaccggcca cttcagcaac agccctttcc 450

ccaggagaag ccaagaactt gtgtgtcccc caccctatcc cctctaacac 500

cattcctcca cctgatgatg caactaacac ttgcctcccc actgcagcct 550

gcggtcctgc ccacctcccg tgatgtgtgt gtgtgtgtgt gtgtgtgact 600

gtgtgtgttt gctaactgtg gtctttgtgg ctacttgttt gtggatggta 650

ttgtgtttgt tagtgaactg tggactcgct ttcccaggca ggggctgagc 700

cacatggcca tctgctcctc cctgcccccg tggccctcca tcaccttctg 750

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ggatgcgtag ggtaagagca cgggcagtgg tcttcagtcg tcttgggacc 850

tgggaaggtt tgcagcactt tgtcatcatt cttcatggac tcctttcact 900

cctttaacaa aaaccttgct tccttatccc acctgatccc agtctgaagg 950

tctcttagca actggagata caaagcaagg agctggtgag cccagcgttg 1000

acgtcaggca ggctatgccc ttccgtggtt aatttcttcc caggggcttc 1050

cacgaggagt ccccatctgc cccgcccctt cacagagcgc ccggggattc 1100

caggcccagg gcttctactc tgcccctggg gaatgtgtcc cctgcatatc 1150

ttctcagcaa taactccatg ggctctggga ccctacccct tccaaccttc 1200

cctgcttctg agacttcaat ctacagccca gctcatccag atgcagacta 1250

cagtccctgc aattgggtct ctggcaggca atagttgaag gactcctgtt 1300

ccgttggggc cagcacaccg ggatggatgg agggagagca gaggcctttg 1350

cttctctgcc tacgtcccct tagatgggca gcagaggcaa ctcccgcatc 1400

175

ctttgctctg cctgtcggtg gtcagagcgg tgagcgaggt gggttggaga 1450

ctcagcaggc tccgtgcagc ccttgggaac agtgagaggt tgaaggtcat 1500

aacgagagtg ggaactcaac ccagatcccg cccctcctgt cctctgtgtt 1550

cccgcggaaa ccaaccaaac cgtgcgctgt gacccattgc tgttctctgt 1600

atcgtgatct atcctcaaca acaacagaaa aaaggaataa aatatccttt 1650

gtttcct 1657

<210> 199
<211> 120
<212> PRT
<213> Homo sapiens

<400> 199
Met Glu Leu Val Leu Val Phe Leu Cys Ser Leu Leu Ala Pro Met
1   5   10   15

Val Leu Ala Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe
                20   25   30

His Tyr Asp Tyr Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala
                35   40   45

Val Val Leu Phe Ser Val Gly Ile Leu Leu Ile Leu Ser Arg Arg
                50   55   60

Cys Lys Cys Ser Phe Asn Gln Lys Pro Arg Ala Pro Gly Asp Glu
65   70   75

Glu Ala Gln Val Glu Asn Leu Ile Thr Ala Asn Ala Thr Glu Pro
                80   85   90

Gln Lys Gln Arg Thr Glu Val Gln Pro Ser Gly Gly Ser Leu Trp
                95   100   105

Asn Leu Arg Arg Leu Leu Glu Pro Leu Asp Ala Asn Val Asp Ala
                110   115   120

<210> 200
<211> 415
<212> DNA
<213> Homo sapiens

<400> 200
aaacttgacg ccatgaagat cccggtcctt cctgccgtgg tgctcctctc 50

cctcctggtg ctccactctg cccagggagc caccctgggt ggtcctgagg 100

aagaaagcac cattgagaat tatgcgtcac gacccgaggc ctttaacacc 150

ccgttcctga acatcgacaa attgcgatct gcgtttaagg ctgatgagtt 200

cctgaactgg cacgccctct ttgagtctat caaaaggaaa cttcctttcc 250

tcaactggga tgcctttcct aagctgaaag gactgaggag cgcaactcct 300

gatgcccagt gaccatgacc tccactggaa gaggggggcta gcgtgagcgc 350

tgattctcaa cctaccataa ctctttcctg cctcaggaac tccaataaaa 400

176

```
cattttccat ccaaa 415
```

<210> 201
<211> 99
<212> PRT
<213> Homo sapiens

<400> 201

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Met Lys Ile Pro Val Leu Pro Ala Val Val Leu Leu Ser Leu Leu
 1               5                  10                      15

Val Leu His Ser Ala Gln Gly Ala Thr Leu Gly Gly Pro Glu Glu
            20                  25                      30

Glu Ser Thr Ile Glu Asn Tyr Ala Ser Arg Pro Glu Ala Phe Asn
            35                  40                      45

Thr Pro Phe Leu Asn Ile Asp Lys Leu Arg Ser Ala Phe Lys Ala
            50                  55                      60

Asp Glu Phe Leu Asn Trp His Ala Leu Phe Glu Ser Ile Lys Arg
            65                  70                      75

Lys Leu Pro Phe Leu Asn Trp Asp Ala Phe Pro Lys Leu Lys Gly
            80                  85                      90

Leu Arg Ser Ala Thr Pro Asp Ala Gln
                95
```

<210> 202
<211> 678
<212> DNA
<213> Homo sapiens

<400> 202

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cagttctgaa atcaatggag ttaatttagg gaatacaaac cagccatggg 50

ggtggagatt gcctttgcct cagtgattct cacctgcctc tcccttctgg 100

cagcaggagt ctcccaggtt gttcttctcc agccagttcc aactcaggag 150

acaggtccca aggccatggg agatctctcc tgtggctttg ccggccactc 200

atgagagtgt ttttgtgtaa agtatttttt agaatactgt tgacttcttc 250

atgatttaat aaccatcctt tgcgaagttt tatgaggctt taggggaatg 300

tcaaccctca aatttttgtt atactagatg gcttccattt acccaccact 350

attttaaggt ccctttattt ttaggttcaa ggttcatttg acttgagaaa 400

gtgcccttct gcagcttcat tgattttgtt tatcttcact attaattgta 450

acgattaaaa aagaataaga gcacgcagac ctctaggaga atattttatc 500

cctgggtgcc cctgacacat ttatgtagtg atcccacaaa tgtgattgtt 550

aatttaaatg ttattctaat attagtacat tcagttgtga tgtaatatga 600

ataaccagaa tctatttctt aaaagttttg agtatatttt tcaactagat 650

atttgtatag aaagactgaa tagtgatg 678
```

<210> 203
<211> 52
<212> PRT
<213> Homo sapiens

<400> 203
```
Met Gly Val Glu Ile Ala Phe Ala Ser Val Ile Leu Thr Cys Leu
 1               5                  10                  15

Ser Leu Leu Ala Ala Gly Val Ser Gln Val Val Leu Leu Gln Pro
                20                  25                  30

Val Pro Thr Gln Glu Thr Gly Pro Lys Ala Met Gly Asp Leu Ser
                35                  40                  45

Cys Gly Phe Ala Gly His Ser
                50
```

<210> 204
<211> 1917
<212> DNA
<213> Homo sapiens

<400> 204

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ggggaatctg cagtaggtct gccggcgatg gagtggtggg ctagctcgcc  50

gcttcggctc tggctgctgt tgttcctcct gccctcagcg cagggccgcc 100

agaaggagtc aggttcaaaa tggaaagtat ttattgacca aattaacagg 150

tctttggaga attacgaacc atgttcaagt caaaactgca gctgctacca 200

tggtgtcata gaagaggatc taactccttt ccgaggaggc atctccagga 250

agatgatggc agaggtagtc agacggaagc tagggaccca ctatcagatc 300

actaagaaca gactgtaccg ggaaaatgac tgcatgttcc cctcaaggtg 350

tagtggtgtt gagcacttta ttttggaagt gatcgggcgt ctccctgaca 400

tggagatggt gatcaatgta cgagattatc ctcaggttcc taaatggatg 450

gagcctgcca tcccagtctt ctccttcagt aagacatcag agtaccatga 500

tatcatgtat cctgcttgga cattttggga aggggggacct gctgtttggc 550

caatttatcc tacaggtctt ggacggtggg acctcttcag agaaagatctg 600

gtaaggtcag cagcacagtg gccatggaaa aagaaaaact ctacagcata 650

tttccgagga tcaaggacaa gtccagaacg agatcctctc attcttctgt 700

ctcggaaaaa cccaaaactt gttgatgcag aatacaccaa aaaccaggcc 750

tggaaatcta tgaaagatac cttaggaaag ccagctgcta aggatgtcca 800

tcttgtggat cactgcaaat acaagtatct gtttaatttt cgaggcgtag 850

ctgcaagttt ccggtttaaa cacctcttcc tgtgtggctc acttgttttc 900

catgttggtg atgagtggct agaattcttc tatccacagc tgaagccatg 950

ggttcactat atcccagtca aaacagatct ctccaatgtc caagagctgt 1000
```

178

```
tacaatttgt aaaagcaaat gatgatgtag ctcaagagat tgctgaaagg 1050

ggaagccagt ttattaggaa ccatttgcag atggatgaca tcacctgtta 1100

ctgggagaac ctcttgagtg aatactctaa attcctgtct tataatgtaa 1150

cgagaaggaa aggttatgat caaattattc ccaaaatgtt gaaaactgaa 1200

ctatagtagt catcatagga ccatagtcct ctttgtggca acagatctca 1250

gatatcctac ggtgagaagc ttaccataag cttggctcct ataccttgaa 1300

tatctgctat caagccaaat acctggtttt ccttatcatg ctgcacccag 1350

agcaactctt gagaaagatt taaaatgtgt ctaatacact gatatgaagc 1400

agttcaactt tttggatgaa taaggaccag aaatcgtgag atgtggattt 1450

tgaacccaac tctacctttc attttcttaa gaccaatcac agcttgtgcc 1500

tcagatcatc cacctgtgtg agtccatcac tgtgaaattg actgtgtcca 1550

tgtgatgatg ccctttgtcc cattatttgg agcagaaaat tcgtcatttg 1600

gaagtagtac aactcattgc tggaattgtg aaattattca aggcgtgatc 1650

tctgtcactt tattttaatg taggaaaccc tatggggttt atgaaaaata 1700

cttgggggatc attctctgaa tggtctaagg aagcggtagc catgccatgc 1750

aatgatgtag gagttctctt ttgtaaaacc ataaactctg ttactcagga 1800

ggtttctata atgccacata gaaagaggcc aattgcatga gtaattattg 1850

caattggatt tcaggttccc tttttgtgcc ttcatgccct acttcttaat 1900

gcctctctaa agccaaa 1917
```

```
Met Glu Trp Trp Ala Ser Ser Pro Leu Arg Leu Trp Leu Leu Leu
1               5                   10                  15

Phe Leu Leu Pro Ser Ala Gln Gly Arg Gln Lys Glu Ser Gly Ser
                20                  25                  30

Lys Trp Lys Val Phe Ile Asp Gln Ile Asn Arg Ser Leu Glu Asn
                35                  40                  45

Tyr Glu Pro Cys Ser Ser Gln Asn Cys Ser Cys Tyr His Gly Val
                50                  55                  60

Ile Glu Glu Asp Leu Thr Pro Phe Arg Gly Gly Ile Ser Arg Lys
                65                  70                  75

Met Met Ala Glu Val Val Arg Arg Lys Leu Gly Thr His Tyr Gln
                80                  85                  90

Ile Thr Lys Asn Arg Leu Tyr Arg Glu Asn Asp Cys Met Phe Pro
```

179

Ser Arg Cys Ser Gly Val Glu His Phe Ile Leu Glu Val Ile Gly
                110   115   120

Arg Leu Pro Asp Met Glu Met Val Ile Asn Val Arg Asp Tyr Pro
                125   130   135

Gln Val Pro Lys Trp Met Glu Pro Ala Ile Pro Val Phe Ser Phe
                140   145   150

Ser Lys Thr Ser Glu Tyr His Asp Ile Met Tyr Pro Ala Trp Thr
                155   160   165

Phe Trp Glu Gly Gly Pro Ala Val Trp Pro Ile Tyr Pro Thr Gly
                170   175   180

Leu Gly Arg Trp Asp Leu Phe Arg Glu Asp Leu Val Arg Ser Ala
                185   190   195

Ala Gln Trp Pro Trp Lys Lys Lys Asn Ser Thr Ala Tyr Phe Arg
                200   205   210

Gly Ser Arg Thr Ser Pro Glu Arg Asp Pro Leu Ile Leu Leu Ser
                215   220   225

Arg Lys Asn Pro Lys Leu Val Asp Ala Glu Tyr Thr Lys Asn Gln
                230   235   240

Ala Trp Lys Ser Met Lys Asp Thr Leu Gly Lys Pro Ala Ala Lys
                245   250   255

Asp Val His Leu Val Asp His Cys Lys Tyr Lys Tyr Leu Phe Asn
                260   265   270

Phe Arg Gly Val Ala Ala Ser Phe Arg Phe Lys His Leu Phe Leu
                275   280   285

Cys Gly Ser Leu Val Phe His Val Gly Asp Glu Trp Leu Glu Phe
                290   295   300

Phe Tyr Pro Gln Leu Lys Pro Trp Val His Tyr Ile Pro Val Lys
                305   310   315

Thr Asp Leu Ser Asn Val Gln Glu Leu Leu Gln Phe Val Lys Ala
                320   325   330

Asn Asp Asp Val Ala Gln Glu Ile Ala Glu Arg Gly Ser Gln Phe
                335   340   345

Ile Arg Asn His Leu Gln Met Asp Asp Ile Thr Cys Tyr Trp Glu
                350   355   360

Asn Leu Leu Ser Glu Tyr Ser Lys Phe Leu Ser Tyr Asn Val Thr
                365   370   375

Arg Arg Lys Gly Tyr Asp Gln Ile Ile Pro Lys Met Leu Lys Thr
                380   385   390

Glu Leu

<210> 206

<211> 1425
<212> DNA
<213> Homo sapiens

<400> 206
cacccctcca tttctcgcca tggcccctgc actgctcctg atccctgctg 50

ccctcgcctc tttcatcctg gcctttggca ccggagtgga gttcgtgcgc 100

tttacctccc ttcggccact tcttggaggg atcccggagt ctggtggtcc 150

ggatgcccgc cagggatggc tggctgccct gcaggaccgc agcatccttg 200

ccccctggc atgggatctg gggctcctgc ttctatttgt tgggcagcac 250

agcctcatgg cagctgaaag agtgaaggca tggacatccc ggtactttgg 300

ggtccttcag aggtcactgt atgtggcctg cactgccctg gccttgcagc 350

tggtgatgcg gtactgggag cccatccca aaggccctgt gttgtgggag 400

gctcgggctg agccatgggc cacctgggtg ccgctcctct gctttgtgct 450

ccatgtcatc tcctggctcc tcatctttag catccttctc gtctttgact 500

atgctgagct catgggcctc aaacaggtat actaccatgt gctggggctg 550

ggcgagcctc tggccctgaa gtctccccgg gctctcagac tcttctccca 600

cctgcgccac ccagtgtgtg tggagctgct gacagtgctg tgggtggtgc 650

ctaccctggg cacggaccgt ctcctccttg ctttcctcct taccctctac 700

ctgggcctgg ctcacgggct tgatcagcaa gacctccgct acctccgggc 750

ccagctacaa agaaaactcc acctgctctc tcggccccag gatggggagg 800

cagagtgagg agctcactct ggttacaagc cctgttcttc ctctcccact 850

gaattctaaa tccttaacat ccaggccctg gctgcttcat gccagaggcc 900

caaatccatg gactgaagga gatgcccctt ctactacttg agactttatt 950

ctctgggtcc agctccatac cctaaattct gagtttcagc cactgaactc 1000

caaggtccac ttctcaccag caaggaagag tggggtatgg aagtcatctg 1050

tcccttcact gtttagagca tgacactctc cccctcaaca gcctcctgag 1100

aaggaaagga tctgccctga ccactcccct ggcactgtta cttgcctctg 1150

cgcctcaggt gtccccttct gcaccgctgg cttccactcc aagaaggtgg 1200

accagggtct gcaagttcaa cggtcatagc tgtccctcca ggccccaacc 1250

ttgcctcacc actcccggcc ctagtctctg cacctcctta ggccctgcct 1300

ctgggctcag accccaacct agtcaagggg attctcctgc tcttaactcg 1350

atgacttggg gctccctgct ctcccgagga agatgctctg caggaaaata 1400

aaagtcagcc tttttctaaa aaaaa 1425

181

<210> 207
<211> 262
<212> PRT
<213> Homo sapiens

<400> 207

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Met Ala Pro Ala Leu Leu Leu Ile Pro Ala Ala Leu Ala Ser Phe
  1               5                  10                  15

Ile Leu Ala Phe Gly Thr Gly Val Glu Phe Val Arg Phe Thr Ser
               20                  25                  30

Leu Arg Pro Leu Leu Gly Gly Ile Pro Glu Ser Gly Gly Pro Asp
               35                  40                  45

Ala Arg Gln Gly Trp Leu Ala Ala Leu Gln Asp Arg Ser Ile Leu
               50                  55                  60

Ala Pro Leu Ala Trp Asp Leu Gly Leu Leu Leu Leu Phe Val Gly
               65                  70                  75

Gln His Ser Leu Met Ala Ala Glu Arg Val Lys Ala Trp Thr Ser
               80                  85                  90

Arg Tyr Phe Gly Val Leu Gln Arg Ser Leu Tyr Val Ala Cys Thr
               95                 100                 105

Ala Leu Ala Leu Gln Leu Val Met Arg Tyr Trp Glu Pro Ile Pro
              110                 115                 120

Lys Gly Pro Val Leu Trp Glu Ala Arg Ala Glu Pro Trp Ala Thr
              125                 130                 135

Trp Val Pro Leu Leu Cys Phe Val Leu His Val Ile Ser Trp Leu
              140                 145                 150

Leu Ile Phe Ser Ile Leu Leu Val Phe Asp Tyr Ala Glu Leu Met
              155                 160                 165

Gly Leu Lys Gln Val Tyr Tyr His Val Leu Gly Leu Gly Glu Pro
              170                 175                 180

Leu Ala Leu Lys Ser Pro Arg Ala Leu Arg Leu Phe Ser His Leu
              185                 190                 195

Arg His Pro Val Cys Val Glu Leu Leu Thr Val Leu Trp Val Val
              200                 205                 210

Pro Thr Leu Gly Thr Asp Arg Leu Leu Leu Ala Phe Leu Leu Thr
              215                 220                 225

Leu Tyr Leu Gly Leu Ala His Gly Leu Asp Gln Gln Asp Leu Arg
              230                 235                 240

Tyr Leu Arg Ala Gln Leu Gln Arg Lys Leu His Leu Leu Ser Arg
              245                 250                 255

Pro Gln Asp Gly Glu Ala Glu
              260
```

<210> 208
<211> 2095
<212> DNA

<213> Homo sapiens

<400> 208
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ccgagcacag gagattgcct gcgtttagga ggtggctgcg ttgtgggaaa 50

agctatcaag gaagaaattg ccaaaccatg tctttttttc tgttttcaga 100

gtagttcaca acagatctga gtgtttaat taagcatgga atacagaaaa 150

caacaaaaaa cttaagcttt aatttcatct ggaattccac agttttctta 200

gctccctgga cccggttgac ctgttggctc ttcccgctgg ctgctctatc 250

acgtggtgct ctccgactac tcaccccgag tgtaaagaac cttcggctcg 300

cgtgcttctg agctgctgtg gatggcctcg gctctctgga ctgtccttcc 350

gagtaggatg tcactgagat ccctcaaatg gagcctcctg ctgctgtcac 400

tcctgagttt ctttgtgatg tggtacctca gccttcccca ctacaatgtg 450

atagaacgcg tgaactggat gtacttctat gagtatgagc cgatttacag 500

acaagacttt cacttcacac ttcgagagca ttcaaactgc tctcatcaaa 550

atccatttct ggtcattctg gtgacctccc acccttcaga tgtgaaagcc 600

aggcaggcca ttagagttac ttggggtgaa aaaaagtctt ggtgggata 650

tgaggttctt acatttttct tattaggcca agaggctgaa aaggaagaca 700

aaatgttggc attgtcctta gaggatgaac accttcttta tggtgacata 750

atccgacaag attttttaga cacatataat aacctgacct tgaaaaccat 800

tatggcattc aggtgggtaa ctgagttttg ccccaatgcc aagtacgtaa 850

tgaagacaga cactgatgtt ttcatcaata ctggcaattt agtgaagtat 900

cttttaaacc taaaccactc agagaagttt ttcacaggtt atcctctaat 950

tgataattat tcctatagag gattttacca aaaaacccat atttcttacc 1000

aggagtatcc tttcaaggtg ttccctccat actgcagtgg gttgggttat 1050

ataatgtcca gagatttggt gccaaggatc tatgaaatga tgggtcacgt 1100

aaaacccatc aagtttgaag atgtttatgt cgggatctgt ttgaatttat 1150

taaaagtgaa cattcatatt ccagaagaca caaatctttt ctttctatat 1200

agaatccatt tggatgtctg tcaactgaga cgtgtgattg cagcccatgg 1250

cttttcttcc aaggagatca tcactttttg gcaggtcatg ctaaggaaca 1300

ccacatgcca ttattaactt cacattctac aaaaagccta gaaggacagg 1350

ataccttgtg gaaagtgtta aataaagtag gtactgtgga aaattcatgg 1400

ggaggtcagt gtgctggctt acactgaact gaaactcatg aaaaacccag 1450

actggagact ggagggttac acttgtgatt tattagtcag gcccttcaaa 1500
```

183

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gatgatatgt ggaggaatta aatataaagg aattggaggt ttttgctaaa 1550

gaaattaata ggaccaaaca atttggacat gtcattctgt agactagaat 1600

ttcttaaaag ggtgttactg agttataagc tcactaggct gtaaaaacaa 1650

aacaatgtag agttttattt attgaacaat gtagtcactt gaaggttttg 1700

tgtatatctt atgtggatta ccaatttaaa aatatatgta gttctgtgtc 1750

aaaaaacttc ttcactgaag ttatactgaa caaaatttta cctgtttttg 1800

gtcatttata aagtacttca agatgttgca gtatttcaca gttattatta 1850

tttaaaatta cttcaacttt gtgtttttaa atgtttttgac gatttcaata 1900

caagataaaa aggatagtga atcattcttt acatgcaaac attttccagt 1950

tacttaactg atcagtttat tattgataca tcactccatt aatgtaaagt 2000

cataggtcat tattgcatat cagtaatctc ttggactttg ttaaatattt 2050

tactgtggta atatagagaa gaattaaagc aagaaaatct gaaaa 2095
```

<210> 209
<211> 331
<212> PRT
<213> Homo sapiens

<400> 209

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Met Ala Ser Ala Leu Trp Thr Val Leu Pro Ser Arg Met Ser Leu
 1               5                  10                  15

Arg Ser Leu Lys Trp Ser Leu Leu Leu Ser Leu Leu Ser Phe
            20                  25                  30

Phe Val Met Trp Tyr Leu Ser Leu Pro His Tyr Asn Val Ile Glu
            35                  40                  45

Arg Val Asn Trp Met Tyr Phe Tyr Glu Tyr Glu Pro Ile Tyr Arg
            50                  55                  60

Gln Asp Phe His Phe Thr Leu Arg Glu His Ser Asn Cys Ser His
            65                  70                  75

Gln Asn Pro Phe Leu Val Ile Leu Val Thr Ser His Pro Ser Asp
            80                  85                  90

Val Lys Ala Arg Gln Ala Ile Arg Val Thr Trp Gly Glu Lys Lys
            95                  100                 105

Ser Trp Trp Gly Tyr Glu Val Leu Thr Phe Phe Leu Leu Gly Gln
            110                 115                 120

Glu Ala Glu Lys Glu Asp Lys Met Leu Ala Leu Ser Leu Glu Asp
            125                 130                 135

Glu His Leu Leu Tyr Gly Asp Ile Ile Arg Gln Asp Phe Leu Asp
            140                 145                 150

Thr Tyr Asn Asn Leu Thr Leu Lys Thr Ile Met Ala Phe Arg Trp
            155                 160                 165
```

184

```
Val Thr Glu Phe Cys Pro Asn Ala Lys Tyr Val Met Lys Thr Asp
              170                 175                 180

Thr Asp Val Phe Ile Asn Thr Gly Asn Leu Val Lys Tyr Leu Leu
              185                 190                 195

Asn Leu Asn His Ser Glu Lys Phe Phe Thr Gly Tyr Pro Leu Ile
              200                 205                 210

Asp Asn Tyr Ser Tyr Arg Gly Phe Tyr Gln Lys Thr His Ile Ser
              215                 220                 225

Tyr Gln Glu Tyr Pro Phe Lys Val Phe Pro Pro Tyr Cys Ser Gly
              230                 235                 240

Leu Gly Tyr Ile Met Ser Arg Asp Leu Val Pro Arg Ile Tyr Glu
              245                 250                 255

Met Met Gly His Val Lys Pro Ile Lys Phe Glu Asp Val Tyr Val
              260                 265                 270

Gly Ile Cys Leu Asn Leu Leu Lys Val Asn Ile His Ile Pro Glu
              275                 280                 285

Asp Thr Asn Leu Phe Phe Leu Tyr Arg Ile His Leu Asp Val Cys
              290                 295                 300

Gln Leu Arg Arg Val Ile Ala Ala His Gly Phe Ser Ser Lys Glu
              305                 310                 315

Ile Ile Thr Phe Trp Gln Val Met Leu Arg Asn Thr Thr Cys His
              320                 325                 330

Tyr


<210> 210
<211> 745
<212> DNA
<213> Homo sapiens

<400> 210
 cctctgtcca ctgctttcgt gaagacaaga tgaagttcac aattgtcttt 50

 gctggacttc ttggagtctt tctagctcct gccctagcta actataatat 100

 caacgtcaat gatgacaaca acaatgctgg aagtgggcag cagtcagtga 150

 gtgtcaacaa tgaacacaat gtggccaatg ttgacaataa caacggatgg 200

 gactcctgga attccatctg ggattatgga aatggctttg ctgcaaccag 250

 actctttcaa aagaagacat gcattgtgca caaaatgaac aaggaagtca 300

 tgccctccat tcaatccctt gatgcactgg tcaaggaaaa gaagcttcag 350

 ggtaagggac caggaggacc acctcccaag ggcctgatgt actcagtcaa 400

 cccaaacaaa gtcgatgacc tgagcaagtt cggaaaaaac attgcaaaca 450

 tgtgtcgtgg gattccaaca tacatggctg aggagatgca agaggcaagc 500

 ctgttttttt actcaggaac gtgctacacg accagtgtac tatggattgt 550
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ggacatttcc ttctgtggag acacggtgga gaactaaaca atttttaaa 600

gccactatgg atttagtcat ctgaatatgc tgtgcagaaa aaatatgggc 650

tccagtggtt tttaccatgt cattctgaaa tttttctcta ctagttatgt 700

ttgatttctt taagtttcaa taaaatcatt tagcattgaa aaaaa 745
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<210> 211
<211> 185
<212> PRT
<213> Homo sapiens

<400> 211
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Met Lys Phe Thr Ile Val Phe Ala Gly Leu Leu Gly Val Phe Leu
 1               5                  10                  15

Ala Pro Ala Leu Ala Asn Tyr Asn Ile Asn Val Asn Asp Asp Asn
                20                  25                  30

Asn Asn Ala Gly Ser Gly Gln Gln Ser Val Ser Val Asn Asn Glu
                35                  40                  45

His Asn Val Ala Asn Val Asp Asn Asn Asn Gly Trp Asp Ser Trp
                50                  55                  60

Asn Ser Ile Trp Asp Tyr Gly Asn Gly Phe Ala Ala Thr Arg Leu
                65                  70                  75

Phe Gln Lys Lys Thr Cys Ile Val His Lys Met Asn Lys Glu Val
                80                  85                  90

Met Pro Ser Ile Gln Ser Leu Asp Ala Leu Val Lys Glu Lys Lys
                95                  100                 105

Leu Gln Gly Lys Gly Pro Gly Gly Pro Pro Pro Lys Gly Leu Met
                110                 115                 120

Tyr Ser Val Asn Pro Asn Lys Val Asp Asp Leu Ser Lys Phe Gly
                125                 130                 135

Lys Asn Ile Ala Asn Met Cys Arg Gly Ile Pro Thr Tyr Met Ala
                140                 145                 150

Glu Glu Met Gln Glu Ala Ser Leu Phe Phe Tyr Ser Gly Thr Cys
                155                 160                 165

Tyr Thr Thr Ser Val Leu Trp Ile Val Asp Ile Ser Phe Cys Gly
                170                 175                 180

Asp Thr Val Glu Asn
                185
```

<210> 212
<211> 1706
<212> DNA
<213> Homo sapiens

<400> 212
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tacagaagta tattaacttt ttaggagtaa tttctagttt ggattgtaat 100
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atgaaataat ttaaaagggc ttcgctcata tataggaaaa tcgcatatgg 150

tcctagtatt aaattcttat tgcttactga ttttttttgag ttaagagttg 200

ttatatgcta gaatatgagg atgtgaatat aaataagaga agaaaaaaga 250

ataaagtaga ttgagtctcc aattttatgt aagcttcaga agaactggtt 300

tgtttacatg caagcttata gttgaaatat ttttcaggaa ttacatgaat 350

gacagtcttc gaaccaatgt gtttgttcga tttcaaccag agactatagc 400

atgtgcttgc atctaccttg cagctagagc acttcagatt ccgttgccaa 450

ctcgtcccca ttggtttctt ctttttggta ctacagaaga ggaaatccag 500

gaaatctgca tagaaacact taggctttat accagaaaaa agccaaacta 550

tgaattactg gaaaagaag tagaaaaaag aaaagtagcc ttacaagaag 600

ccaaattaaa agcaaaggga ttgaatccgg atggaactcc agcccttca 650

accctgggtg gattttctcc agcctccaag ccatcatcac caagagaagt 700

aaaagctgaa gagaaatcac caatctccat taatgtgaag acagtcaaaa 750

aagaacctga ggatagacaa caggcttcca aaagcccta caatggtgta 800

agaaaagaca gcaagagaag tagaaatagc agaagtgcaa gtcgatcgag 850

gtcaagaaca cgatcacgtt ctagatcaca tactccaaga agacactata 900

ataataggcg gagtcgatct ggaacataca gctcgagatc aagaagcagg 950

tcccgcagtc acagtgaaag ccctcgaaga catcataatc atggttctcc 1000

tcaccttaag gccaagcata ccagagatga tttaaaaagt tcaaacagac 1050

atggtcataa aaggaaaaaa tctcgttctc gatctcagag caagtctcgg 1100

gatcactcag atgcagccaa gaaacacagg catgaaaggg gacatcatag 1150

ggacaggcgt gaacgatctc gctcctttga gaggtcccat aaaagcaagc 1200

accatggtgg cagtcgctca ggacatggca ggcacaggcg ctgactttct 1250

cttcctttga gcctgcatca gttcttggtt ttgcctatct acagtgtgat 1300

gtatggactc aatcaaaaac attaaacgca aactgattag gatttgattt 1350

cttgaaaccc tctaggtctc tagaacactg aggacagttt cttttgaaaa 1400

gaactatgtt aatttttttg cacattaaaa tgccctagca gtatctaatt 1450

aaaaaccatg gtcaggttca attgtacttt attatagttg tgtattgttt 1500

attgctataa gaactggagc gtgaattctg taaaaatgta tcttattttt 1550

atacagataa aattgcagac actgttctat ttaagtggtt atttgtttaa 1600

atgatggtga atactttctt aacactggtt tgtctgcatg tgtaaagatt 1650

tttacaagga aataaaatac aaatcttgtt ttttctaaaa aaaaaaaaaa 1700
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187

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aaaagt 1706

<210> 213
<211> 299
<212> PRT
<213> Homo sapiens

<400> 213
Met Asn Asp Ser Leu Arg Thr Asn Val Phe Val Arg Phe Gln Pro
  1               5                   10                  15

Glu Thr Ile Ala Cys Ala Cys Ile Tyr Leu Ala Ala Arg Ala Leu
               20                  25                  30

Gln Ile Pro Leu Pro Thr Arg Pro His Trp Phe Leu Leu Phe Gly
               35                  40                  45

Thr Thr Glu Glu Glu Ile Gln Glu Ile Cys Ile Glu Thr Leu Arg
               50                  55                  60

Leu Tyr Thr Arg Lys Lys Pro Asn Tyr Glu Leu Leu Glu Lys Glu
               65                  70                  75

Val Glu Lys Arg Lys Val Ala Leu Gln Gln Ala Lys Leu Lys Ala
               80                  85                  90

Lys Gly Leu Asn Pro Asp Gly Thr Pro Ala Leu Ser Thr Leu Gly
               95                  100                 105

Gly Phe Ser Pro Ala Ser Lys Pro Ser Ser Pro Arg Glu Val Lys
               110                 115                 120

Ala Glu Glu Lys Ser Pro Ile Ser Ile Asn Val Lys Thr Val Lys
               125                 130                 135

Lys Glu Pro Glu Asp Arg Gln Gln Ala Ser Lys Ser Pro Tyr Asn
               140                 145                 150

Gly Val Arg Lys Asp Ser Lys Arg Ser Arg Asn Ser Arg Ser Ala
               155                 160                 165

Ser Arg Ser Arg Ser Arg Thr Arg Ser Arg Ser Arg Ser His Thr
               170                 175                 180

Pro Arg Arg His Tyr Asn Asn Arg Arg Ser Arg Ser Gly Thr Tyr
               185                 190                 195

Ser Ser Arg Ser Arg Ser Arg Ser Arg Ser His Ser Glu Ser Pro
               200                 205                 210

Arg Arg His His Asn His Gly Ser Pro His Leu Lys Ala Lys His
               215                 220                 225

Thr Arg Asp Asp Leu Lys Ser Ser Asn Arg His Gly His Lys Arg
               230                 235                 240

Lys Lys Ser Arg Ser Arg Ser Gln Ser Lys Ser Arg Asp His Ser
               245                 250                 255

Asp Ala Ala Lys Lys His Arg His Glu Arg Gly His His Arg Asp
               260                 265                 270

Arg Arg Glu Arg Ser Arg Ser Phe Glu Arg Ser His Lys Ser Lys
```

188

His His Gly Gly Ser Arg Ser Gly His Gly Arg His Arg Arg
                    290   295

<210> 214
<211> 730
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 72-73, 85, 91, 127, 226, 268, 454, 484, 513, 566, 663
<223> unknown base

<400> 214
 tgggataaa ggaaaaatgg tcaggtatta atggcttaaa gattattgga 50

 aggggtttat catttttttga anntattcgg gtcanaattg nctttgaaaa 100

 gcattgcttt ttacagaaat atattanctt tttagagtaa tttctagttt 150

 ggattgtaat atgaaattat ttaaaagggc ttcgctcata tataggaaaa 200

 tcgcatatgg tcctagtatt aaattnttat tgcttactga ttttttttgag 250

 ttaagagttg ttatatgnta gaatatgagg atgtgaatat aaataagaga 300

 agaaaaaaga ataaagtaga ttgagtctcc aattttatgt aagcttcaga 350

 agaactggtt tgtttacatg caagcttata gttgaaatat ttttcaggaa 400

 ttacatgaat gacagtcttc gaaccaatgt gtttgttcga tttcaaccag 450

 agantatagc atgtgcttgc atctaccttg cagntagagc acttcagatt 500

 ccgttgccaa ctngtcccca ttggtttctt cttttttggta ctacagaaga 550

 ggaaatccag gaaatntgca tagaaacact taggctttat accagaaaaa 600

 agccaaacta tgaattactg gaaaaagaag tagaaaaaag aaaagtagcc 650

 ttacaagaag ccnaattaaa agcaaaggga ttgaatccgg atggaactcc 700

 agcccttttca accctgggtg gattttctcc 730

<210> 215
<211> 1807
<212> DNA
<213> Homo sapiens

<400> 215
 ggcacgaggc ctcgtgccaa gcttggcacg agggtgcacc gcgttctcgc 50

 acgcgtcatg gcggtcctcg gagtacagct ggtggtgacc ctgctcactg 100

 ccaccctcat gcacaggctg gcgccacact gctccttcgc gcgctggctg 150

 ctctgtaacg gcagtttgtt ccgatacaag cacccgtctg aggaggagct 200

 tcgggccctg gcgggggaagc cgaggcccag aggcaggaaa gagcggtggg 250

 ccaatggcct tagtgaggag aagccactgt ctgtgccccg agatgccccg 300

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ttccagctgg agacctgccc cctcacgacc gtggatgccc tggtcctgcg 350

cttcttcctg gagtaccagt ggtttgtgga ctttgctgtg tactcgggcg 400

gcgtgtacct cttcacagag gcctactact acatgctggg accagccaag 450

gagactaaca ttgctgtgtt ctggtgcctg ctcacggtga ccttctccat 500

caagatgttc ctgacagtga cacggctgta cttcagcgcc gaggagggg 550

gtgagcgctc tgtctgcctc acctttgcct tcctcttcct gctgctggcc 600

atgctggtgc aagtggtgcg ggaggagacc ctcgagctgg gcctggagcc 650

tggtctggcc agcatgaccc agaacttaga gccacttctg aagaagcagg 700

gctgggactg ggcgcttcct gtggccaagc tggctatccg cgtgggactg 750

gcagtggtgg gctctgtgct gggtgccttc ctcaccttcc caggcctgcg 800

gctggcccag acccaccggg acgcactgac catgtcggag gacagaccca 850

tgctgcagtt cctcctgcac accagcttcc tgtctcccct gttcatcctg 900

tggctctgga caaagcccat tgcacgggac ttcctgcacc agccgccgtt 950

tggggagacg cgtttctccc tgctgtccga ttctgccttc gactctgggc 1000

gcctctggtt gctggtggtg ctgtgcctgc tgcggctggc ggtgacccgg 1050

ccccacctgc aggcctacct gtgcctggcc aaggcccggg tggagcagct 1100

gcgaagggag gctggccgca tcgaagcccg tgaaatccag cagagggtgg 1150

tccgagtcta ctgctatgtg accgtggtga gcttgcagta cctgacgccg 1200

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gcgcggattg ccggggccct gggtggcctg cttactcccc tcttcctccg 1400

tggcgtcctg gcctacctca tctggtggac ggctgcctgc cagctgctcg 1450

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cctgcagacc ctcctggggc cctgaggtct gttcctgggg cagcgggaca 1550

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gccggactcc ccggcgttcc cttcaccaca gtgcctgacc cgcggccccc 1650

cttggacgcc gagtttctgc ctcagaactg tctctcctgg gcccagcagc 1700

atgagggtcc cgaggccatt gtctccgaag cgtatgtgcc aggtttgagt 1750

ggcgaggggtg atgctggctg ctcttctgaa caaataaagg agcatgccga 1800

tttttaa 1807
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<210> 216

<211> 479
<212> PRT
<213> Homo sapiens

<400> 216
Met Ala Val Leu Gly Val Gln Leu Val Val Thr Leu Leu Thr Ala
1   5   10   15

Thr Leu Met His Arg Leu Ala Pro His Cys Ser Phe Ala Arg Trp
                20   25   30

Leu Leu Cys Asn Gly Ser Leu Phe Arg Tyr Lys His Pro Ser Glu
                35   40   45

Glu Glu Leu Arg Ala Leu Ala Gly Lys Pro Arg Pro Arg Gly Arg
                50   55   60

Lys Glu Arg Trp Ala Asn Gly Leu Ser Glu Glu Lys Pro Leu Ser
                65   70   75

Val Pro Arg Asp Ala Pro Phe Gln Leu Glu Thr Cys Pro Leu Thr
                80   85   90

Thr Val Asp Ala Leu Val Leu Arg Phe Phe Leu Glu Tyr Gln Trp
                95   100   105

Phe Val Asp Phe Ala Val Tyr Ser Gly Gly Val Tyr Leu Phe Thr
                110   115   120

Glu Ala Tyr Tyr Tyr Met Leu Gly Pro Ala Lys Glu Thr Asn Ile
                125   130   135

Ala Val Phe Trp Cys Leu Leu Thr Val Thr Phe Ser Ile Lys Met
                140   145   150

Phe Leu Thr Val Thr Arg Leu Tyr Phe Ser Ala Glu Glu Gly Gly
                155   160   165

Glu Arg Ser Val Cys Leu Thr Phe Ala Phe Leu Phe Leu Leu Leu
                170   175   180

Ala Met Leu Val Gln Val Val Arg Glu Glu Thr Leu Glu Leu Gly
                185   190   195

Leu Glu Pro Gly Leu Ala Ser Met Thr Gln Asn Leu Glu Pro Leu
                200   205   210

Leu Lys Lys Gln Gly Trp Asp Trp Ala Leu Pro Val Ala Lys Leu
                215   220   225

Ala Ile Arg Val Gly Leu Ala Val Val Gly Ser Val Leu Gly Ala
                230   235   240

Phe Leu Thr Phe Pro Gly Leu Arg Leu Ala Gln Thr His Arg Asp
                245   250   255

Ala Leu Thr Met Ser Glu Asp Arg Pro Met Leu Gln Phe Leu Leu
                260   265   270

His Thr Ser Phe Leu Ser Pro Leu Phe Ile Leu Trp Leu Trp Thr
                275   280   285

Lys Pro Ile Ala Arg Asp Phe Leu His Gln Pro Pro Phe Gly Glu

                              191

Thr Arg Phe Ser Leu Leu Ser Asp Ser Ala Phe Asp Ser Gly Arg
              305   310   315

Leu Trp Leu Leu Val Val Leu Cys Leu Leu Arg Leu Ala Val Thr
              320   325   330

Arg Pro His Leu Gln Ala Tyr Leu Cys Leu Ala Lys Ala Arg Val
              335   340   345

Glu Gln Leu Arg Arg Glu Ala Gly Arg Ile Glu Ala Arg Glu Ile
              350   355   360

Gln Gln Arg Val Val Arg Val Tyr Cys Tyr Val Thr Val Val Ser
              365   370   375

Leu Gln Tyr Leu Thr Pro Leu Ile Leu Thr Leu Asn Cys Thr Leu
              380   385   390

Leu Leu Lys Thr Leu Gly Gly Tyr Ser Trp Gly Leu Gly Pro Ala
              395   400   405

Pro Leu Leu Ser Pro Asp Pro Ser Ser Ala Ser Ala Ala Pro Ile
              410   415   420

Gly Ser Gly Glu Asp Glu Val Gln Gln Thr Ala Ala Arg Ile Gly
              425   430   435

Gly Ala Leu Gly Gly Leu Leu Thr Pro Leu Phe Leu Arg Gly Val
              440   445   450

Leu Ala Tyr Leu Ile Trp Trp Thr Ala Ala Cys Gln Leu Leu Ala
              455   460   465

Ser Leu Phe Gly Leu Tyr Phe His Gln His Leu Ala Gly Ser
              470   475

<210> 217
<211> 574
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 5, 146
<223> unknown base

<400> 217
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gctcactgcc accctcatgc acaggctggc gccacactgc tccttcgcgc 100

gctggctgct ctgtaacggc agtttgttcc gatacaagca cccgtnttga 150

ggaggagctt cgggccctgg cggggaagcc gaggcccaga ggcaggaaag 200

agcggtgggc caatggcctt agtgaggaga agccactgtc tgtgccccga 250

gatgccccgt tccagctgga gacctgcccc ctcacgaccg tggatgccct 300

ggtcctgcgc ttcttcctgg agtaccagtg gtttgtggac tttgctgtgt 350

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actcgggcgg cgtgtacctc ttcacagagg cctactacta catgctggga 400

ccagccaagg agactaacat tgctgtgttc tggtgcctgc tcacagtgac 450

cttctccatc aagatgttcc tgacagtgac acggctgtac ttcagcgccg 500

aggaggggggg tgagcgctct gtctgcctca cctttgcctt cctcttcctg 550

ctgctggcca tgctggtgca agcg 574
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<210> 218
<211> 2571
<212> DNA
<213> Homo sapiens

<400> 218
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gcccgtgatt tattaacgtg gcttaatctg aaggttctca gtcaaattct 100

ttgtgatcta ctgattgtgg gggcatggca aggtttgctt aaaggagctt 150

ggctggtttg ggcccttgta gctgacagaa ggtggccagg gagaatgcag 200

cacactgctc ggagaatgaa ggcgcttctg ttgctggtct tgccttggct 250

cagtcctgct aactacattg acaatgtggg caacctgcac ttcctgtatt 300

cagaactctg taaaggtgcc tcccactacg gcctgaccaa agataggaag 350

aggcgctcac aagatggctg tccagacggc tgtgcgagcc tcacagccac 400

ggctccctcc ccagaggttt ctgcagctgc caccatctcc ttaatgacag 450

acgagcctgg cctagacaac cctgcctacg tgtcctcggc agaggacggg 500

cagccagcaa tcagcccagt ggactctggc cggagcaacc gaactagggc 550

acggcccttt gagagatcca ctattagaag cagatcattt aaaaaaataa 600

atcgagcttt gagtgttctt cgaaggacaa agagcgggag tgcagttgcc 650

aaccatgccg accagggcag ggaaaattct gaaaacacca ctgcccctga 700

agtctttcca aggttgtacc acctgattcc agatggtgaa attaccagca 750

tcaagatcaa tcgagtagat cccagtgaaa gcctctctat taggctggtg 800

ggaggtagcg aaaccccact ggtccatatc attatccaac acatttatcg 850

tgatggggtg atcgccagag acggccggct actgccagga gacatcattc 900

taaaggtcaa cgggatggac atcagcaatg tccctcacaa ctacgctgtg 950

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cagcttggaa taaaactggt gcgcaaggtg gatgagcctg gggtttttcat 1150

cttcaatgtg ctggatggcg gtgtggcata tcgacatggt cagcttgagg 1200
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193

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agaatgaccg tgtgttagcc atcaatggac atgatcttcg atatggcagc 1250

ccagaaagtg cggctcatct gattcaggcc agtgaaagac gtgttcacct 1300

cgtcgtgtcc cgccaggttc ggcagcggag ccctgacatc tttcaggaag 1350

ccggctggaa cagcaatggc agctggtccc cagggccagg ggagaggagc 1400

aacactccca agcccctcca tcctacaatt acttgtcatg agaaggtggt 1450

aaatatccaa aaagaccccg gtgaatctct cggcatgacc gtcgcagggg 1500

gagcatcaca tagagaatgg gatttgccta tctatgtcat cagtgttgag 1550

cccggaggag tcataagcag agatggaaga ataaaaacag gtgacatttt 1600

gttgaatgtg gatggggtcg aactgacaga ggtcagccgg agtgaggcag 1650

tggcattatt gaaaagaaca tcatcctcga tagtactcaa agctttggaa 1700

gtcaaagagt atgagcccca ggaagactgc agcagcccag cagccctgga 1750

ctccaaccac aacatggccc cacccagtga ctggtcccca tcctgggtca 1800

tgtggctgga attaccacgg tgcttgtata actgtaaaga tattgtatta 1850

cgaagaaaca cagctggaag tctgggcttc tgcattgtag gaggttatga 1900

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caccagcata caatgatgga agaattagat gtggtgatat tcttcttgct 2000

gtcaatggta gaagtacatc aggaatgata catgcttgct tggcaagact 2050

gctgaaagaa cttaaaggaa gaattactct aactattgtt tcttggcctg 2100

gcactttttt atagaatcaa tgatgggtca gaggaaaaca gaaaaatcac 2150

aaataggcta agaagttgaa acactatatt tatcttgtca gtttttatat 2200

ttaaagaaag aatacattgt aaaaatgtca ggaaaagtat gatcatctaa 2250

tgaaagccag ttacacctca gaaatatga ttccaaaaaa attaaaacta 2300

ctagtttttt ttcagtgtgg aggatttctc attactctac aacattgttt 2350

atatttttc tattcaataa aaagccctaa aacaactaaa atgattgatt 2400

tgtatacccc actgaattca agctgattta aatttaaaat ttggtatatg 2450

ctgaagtctg ccaagggtac attatggcca tttttaattt acagctaaaa 2500

tatttttaa aatgcattgc tgagaaacgt tgctttcatc aaacaagaat 2550

aaatattttt cagaagttaa a 2571
```

<210> 219
<211> 632
<212> PRT
<213> Homo sapiens

<400> 219
Met Lys Ala Leu Leu Leu Leu Val Leu Pro Trp Leu Ser Pro Ala

194

```
 1               5               10                      15

Asn Tyr Ile Asp Asn Val Gly Asn Leu His Phe Leu Tyr Ser Glu
                20                      25                      30

Leu Cys Lys Gly Ala Ser His Tyr Gly Leu Thr Lys Asp Arg Lys
                35                      40                      45

Arg Arg Ser Gln Asp Gly Cys Pro Asp Gly Cys Ala Ser Leu Thr
                50                      55                      60

Ala Thr Ala Pro Ser Pro Glu Val Ser Ala Ala Ala Thr Ile Ser
                65                      70                      75

Leu Met Thr Asp Glu Pro Gly Leu Asp Asn Pro Ala Tyr Val Ser,
                80                      85                      90

Ser Ala Glu Asp Gly Gln Pro Ala Ile Ser Pro Val Asp Ser Gly
                95                      100                     105

Arg Ser Asn Arg Thr Arg Ala Arg Pro Phe Glu Arg Ser Thr Ile
                110                     115                     120

Arg Ser Arg Ser Phe Lys Lys Ile Asn Arg Ala Leu Ser Val Leu
                125                     130                     135

Arg Arg Thr Lys Ser Gly Ser Ala Val Ala Asn His Ala Asp Gln
                140                     145                     150

Gly Arg Glu Asn Ser Glu Asn Thr Thr Ala Pro Glu Val Phe Pro
                155                     160                     165

Arg Leu Tyr His Leu Ile Pro Asp Gly Glu Ile Thr Ser Ile Lys
                170                     175                     180

Ile Asn Arg Val Asp Pro Ser Glu Ser Leu Ser Ile Arg Leu Val
                185                     190                     195

Gly Gly Ser Glu Thr Pro Leu Val His Ile Ile Ile Gln His Ile
                200                     205                     210

Tyr Arg Asp Gly Val Ile Ala Arg Asp Gly Arg Leu Leu Pro Gly
                215                     220                     225

Asp Ile Ile Leu Lys Val Asn Gly Met Asp Ile Ser Asn Val Pro
                230                     235                     240

His Asn Tyr Ala Val Arg Leu Leu Arg Gln Pro Cys Gln Val Leu
                245                     250                     255

Trp Leu Thr Val Met Arg Glu Gln Lys Phe Arg Ser Arg Asn Asn
                260                     265                     270

Gly Gln Ala Pro Asp Ala Tyr Arg Pro Arg Asp Asp Ser Phe His
                275                     280                     285

Val Ile Leu Asn Lys Ser Ser Pro Glu Glu Gln Leu Gly Ile Lys
                290                     295                     300

Leu Val Arg Lys Val Asp Glu Pro Gly Val Phe Ile Phe Asn Val
                305                     310                     315

Leu Asp Gly Gly Val Ala Tyr Arg His Gly Gln Leu Glu Glu Asn
```

195

```
              320                 325                 330
Asp Arg Val Leu Ala Ile Asn Gly His Asp Leu Arg Tyr Gly Ser
              335                 340                 345
Pro Glu Ser Ala Ala His Leu Ile Gln Ala Ser Glu Arg Arg Val
              350                 355                 360
His Leu Val Val Ser Arg Gln Val Arg Gln Arg Ser Pro Asp Ile
              365                 370                 375
Phe Gln Glu Ala Gly Trp Asn Ser Asn Gly Ser Trp Ser Pro Gly
              380                 385                 390
Pro Gly Glu Arg Ser Asn Thr Pro Lys Pro Leu His Pro Thr Ile
              395                 400                 405
Thr Cys His Glu Lys Val Val Asn Ile Gln Lys Asp Pro Gly Glu
              410                 415                 420
Ser Leu Gly Met Thr Val Ala Gly Gly Ala Ser His Arg Glu Trp
              425                 430                 435
Asp Leu Pro Ile Tyr Val Ile Ser Val Glu Pro Gly Gly Val Ile
              440                 445                 450
Ser Arg Asp Gly Arg Ile Lys Thr Gly Asp Ile Leu Leu Asn Val
              455                 460                 465
Asp Gly Val Glu Leu Thr Glu Val Ser Arg Ser Glu Ala Val Ala
              470                 475                 480
Leu Leu Lys Arg Thr Ser Ser Ser Ile Val Leu Lys Ala Leu Glu
              485                 490                 495
Val Lys Glu Tyr Glu Pro Gln Glu Asp Cys Ser Ser Pro Ala Ala
              500                 505                 510
Leu Asp Ser Asn His Asn Met Ala Pro Pro Ser Asp Trp Ser Pro
              515                 520                 525
Ser Trp Val Met Trp Leu Glu Leu Pro Arg Cys Leu Tyr Asn Cys
              530                 535                 540
Lys Asp Ile Val Leu Arg Arg Asn Thr Ala Gly Ser Leu Gly Phe
              545                 550                 555
Cys Ile Val Gly Gly Tyr Glu Glu Tyr Asn Gly Asn Lys Pro Phe
              560                 565                 570
Phe Ile Lys Ser Ile Val Glu Gly Thr Pro Ala Tyr Asn Asp Gly
              575                 580                 585
Arg Ile Arg Cys Gly Asp Ile Leu Leu Ala Val Asn Gly Arg Ser
              590                 595                 600
Thr Ser Gly Met Ile His Ala Cys Leu Ala Arg Leu Leu Lys Glu
              605                 610                 615
Leu Lys Gly Arg Ile Thr Leu Thr Ile Val Ser Trp Pro Gly Thr
              620                 625                 630
Phe Leu
```

<210> 220
<211> 773
<212> DNA
<213> Homo sapiens

<400> 220
```
ccaaagtgat catttgaaaa agagatatcc acatcttcaa gcccatataa 50

aggatagaag ctgcacaggg cagctttact tactccagca ccttcctctc 100

ccaggcaaat ggtgctgacc atctttggga tacaatctca tggatacgag 150

gtttttaaca tcatcagccc aagcaacaat ggtggcaatg ttcaggagac 200

agtgacaatt gataatgaaa aaaataccgc catcgttaac atccatgcag 250

gatcatgctc ttctaccaca atttttgact ataaacatgg ctacattgca 300

tccagggtgc tctcccgaag agcctgcttt atcctgaaga tggaccatca 350

gaacatccct cctctgaaca atctccaatg gtacatctat gagaaacagg 400

ctctggacaa catgttctcc aacaaataca cctgggtcaa gtacaaccct 450

ctggagtctc tgatcaaaga cgtggattgg ttcctgcttg ggtcacccat 500

tgagaaactc tgcaaacata tcccttttgta taggggggaa gtggttgaaa 550

acacacataa tgtcggtgct ggaggctgtg caaaggctgg gctcctgggc 600

atcttgggaa tttcaatctg tgcagacatt catgtttagg atgattagcc 650

ctcttgtttt atcttttcaa agaaatacat ccttggttta cactcaaaag 700

tcaaattaaa ttctttccca atgccccaac taattttgag attcagtcag 750

aaaatataaa tgctgtattt ata 773
```

<210> 221
<211> 184
<212> PRT
<213> Homo sapiens

<400> 221
```
Met Lys Ile Leu Val Ala Phe Leu Val Val Leu Thr Ile Phe Gly
  1               5                  10                  15

Ile Gln Ser His Gly Tyr Glu Val Phe Asn Ile Ile Ser Pro Ser
                 20                  25                  30

Asn Asn Gly Gly Asn Val Gln Glu Thr Val Thr Ile Asp Asn Glu
                 35                  40                  45

Lys Asn Thr Ala Ile Val Asn Ile His Ala Gly Ser Cys Ser Ser
                 50                  55                  60

Thr Thr Ile Phe Asp Tyr Lys His Gly Tyr Ile Ala Ser Arg Val
                 65                  70                  75

Leu Ser Arg Arg Ala Cys Phe Ile Leu Lys Met Asp His Gln Asn
                 80                  85                  90
```

197

```
Ile Pro Pro Leu Asn Asn Leu Gln Trp Tyr Ile Tyr Glu Lys Gln
                95                  100                     105

Ala Leu Asp Asn Met Phe Ser Asn Lys Tyr Thr Trp Val Lys Tyr
                110                 115                     120

Asn Pro Leu Glu Ser Leu Ile Lys Asp Val Asp Trp Phe Leu Leu
                125                 130                     135

Gly Ser Pro Ile Glu Lys Leu Cys Lys His Ile Pro Leu Tyr Lys
                140                 145                     150

Gly Glu Val Val Glu Asn Thr His Asn Val Gly Ala Gly Gly Cys
                155                 160                     165

Ala Lys Ala Gly Leu Leu Gly Ile Leu Gly Ile Ser Ile Cys Ala
                170                 175                     180

Asp Ile His Val
```

<210> 222
<211> 992
<212> DNA
<213> Homo sapiens

<400> 222

```
ggcacgagcc aggaactagg aggttctcac tgcccgagca gaggccctac 50

acccaccgag gcatggggct ccctgggctg ttctgcttgg ccgtgctggc 100

tgccagcagc ttctccaagg cacgggagga agaaattacc cctgtggtct 150

ccattgccta caaagtcctg gaagttttcc ccaaaggccg ctgggtgctc 200

ataacctgct gtgcacccca gccaccaccg cccatcacct attccctctg 250

tggaaccaag aacatcaagg tggccaagaa ggtggtgaag acccacgagc 300

cggcctcctt caacctcaac gtcacactca agtccagtcc agacctgctc 350

acctacttct gccgggcgtc ctccacctca ggtgcccatg tggacagtgc 400

caggctacag atgcactggg agctgtggtc caagccagtg tctgagctgc 450

gggccaactt cactctgcag gacagagggg caggccccag ggtggagatg 500

atctgccagg cgtcctcggg cagcccacct atcaccaaca gcctgatcgg 550

gaaggatggg caggtccacc tgcagcagag accatgccac aggcagcctg 600

ccaacttctc cttcctgccg agccagacat cggactggtt ctggtgccag 650

gctgcaaaca acgccaatgt ccagcacagc gccctcacag tggtgccccc 700

aggtggtgac cagaagatgg aggactggca gggtcccctg gagagcccca 750

tccttgcctt gccgctctac aggagcaccc gccgtctgag tgaagaggag 800

tttgggggt tcaggatagg gaatggggag gtcagaggac gcaaagcagc 850

agccatgtag aatgaaccgt ccagagagcc aagcacggca gaggactgca 900
```

```
ggccatcagc gtgcactgtt cgtatttgga gttcatgcaa aatgagtgtg 950

tttttagctgc tcttgccaca aaaaaaaaaa aaaaaaaaaa aa 992
```

<210> 223
<211> 265
<212> PRT
<213> Homo sapiens

<400> 223

```
Met Gly Leu Pro Gly Leu Phe Cys Leu Ala Val Leu Ala Ala Ser
 1               5                  10                  15

Ser Phe Ser Lys Ala Arg Glu Glu Glu Ile Thr Pro Val Val Ser
            20                  25                  30

Ile Ala Tyr Lys Val Leu Glu Val Phe Pro Lys Gly Arg Trp Val
            35                  40                  45

Leu Ile Thr Cys Cys Ala Pro Gln Pro Pro Pro Ile Thr Tyr
            50                  55                  60

Ser Leu Cys Gly Thr Lys Asn Ile Lys Val Ala Lys Lys Val Val
            65                  70                  75

Lys Thr His Glu Pro Ala Ser Phe Asn Leu Asn Val Thr Leu Lys
            80                  85                  90

Ser Ser Pro Asp Leu Leu Thr Tyr Phe Cys Arg Ala Ser Ser Thr
            95                  100                 105

Ser Gly Ala His Val Asp Ser Ala Arg Leu Gln Met His Trp Glu
            110                 115                 120

Leu Trp Ser Lys Pro Val Ser Glu Leu Arg Ala Asn Phe Thr Leu
            125                 130                 135

Gln Asp Arg Gly Ala Gly Pro Arg Val Glu Met Ile Cys Gln Ala
            140                 145                 150

Ser Ser Gly Ser Pro Pro Ile Thr Asn Ser Leu Ile Gly Lys Asp
            155                 160                 165

Gly Gln Val His Leu Gln Gln Arg Pro Cys His Arg Gln Pro Ala
            170                 175                 180

Asn Phe Ser Phe Leu Pro Ser Gln Thr Ser Asp Trp Phe Trp Cys
            185                 190                 195

Gln Ala Ala Asn Asn Ala Asn Val Gln His Ser Ala Leu Thr Val
            200                 205                 210

Val Pro Pro Gly Gly Asp Gln Lys Met Glu Asp Trp Gln Gly Pro
            215                 220                 225

Leu Glu Ser Pro Ile Leu Ala Leu Pro Leu Tyr Arg Ser Thr Arg
            230                 235                 240

Arg Leu Ser Glu Glu Glu Phe Gly Gly Phe Arg Ile Gly Asn Gly
            245                 250                 255

Glu Val Arg Gly Arg Lys Ala Ala Ala Met
            260                 265
```

199

<210> 224
<211> 1297
<212> DNA
<213> Homo sapiens

<400> 224
ggtccttaat ggcagcagcc gccgctacca agatccttct gtgcctcccg 50

cttctgctcc tgctgtccgg ctggtcccgg gctgggcgag ccgaccctca 100

ctctctttgc tatgacatca ccgtcatccc taagttcaga cctggaccac 150

ggtggtgtgc ggttcaaggc caggtggatg aaaagacttt tcttcactat 200

gactgtggca acaagacagt cacacctgtc agtcccctgg ggaagaaact 250

aaatgtcaca acggcctgga aagcacagaa cccagtactg agagaggtgg 300

tggacatact tacagagcaa ctgcgtgaca ttcagctgga gaattacaca 350

cccaaggaac ccctcaccct gcaggcaagg atgtcttgtg agcagaaagc 400

tgaaggacac agcagtggat cttggcagtt cagtttcgat gggcagatct 450

tcctcctctt tgactcagag aagagaatgt ggacaacggt tcatcctgga 500

gccagaaaga tgaaagaaaa gtgggagaat gacaaggttg tggccatgtc 550

cttccattac ttctcaatgg gagactgtat aggatggctt gaggacttct 600

tgatgggcat ggacagcacc ctggagccaa gtgcaggagc accactcgcc 650

atgtcctcag gcacaaccca actcagggcc acagccacca ccctcatcct 700

ttgctgcctc ctcatcatcc tcccctgctt catcctccct ggcatctgag 750

gagagtcctt tagagtgaca ggttaaagct gataccaaaa ggctcctgtg 800

agcacggtct tgatcaaact cgcccttctg tctggccagc tgcccacgac 850

ctacggtgta tgtccagtgg cctccagcag atcatgatga catcatggac 900

ccaatagctc attcactgcc ttgattcctt ttgccaacaa ttttaccagc 950

agttatacct aacatattat gcaattttct cttggtgcta cctgatggaa 1000

ttcctgcact taaagttctg gctgactaaa caagatatat catttttcttt 1050

cttctctttt tgtttggaaa atcaagtact tctttgaatg atgatctctt 1100

tcttgcaaat gatattgtca gtaaaataat cacgttagac ttcagacctc 1150

tggggattct ttccgtgtcc tgaaagagaa ttttttaaatt atttaataag 1200

aaaaaattta tattaatgat tgtttccttt agtaatttat tgttctgtac 1250

tgatatttaa ataaagagtt ctatttccca aaaaaaaaaa aaaaaaa 1297

<210> 225
<211> 246
<212> PRT
<213> Homo sapiens

<400> 225

```
Met Ala Ala Ala Ala Ala Thr Lys Ile Leu Leu Cys Leu Pro Leu
 1               5                  10                  15

Leu Leu Leu Leu Ser Gly Trp Ser Arg Ala Gly Arg Ala Asp Pro
                20                  25                  30

His Ser Leu Cys Tyr Asp Ile Thr Val Ile Pro Lys Phe Arg Pro
                35                  40                  45

Gly Pro Arg Trp Cys Ala Val Gln Gly Gln Val Asp Glu Lys Thr
                50                  55                  60

Phe Leu His Tyr Asp Cys Gly Asn Lys Thr Val Thr Pro Val Ser
                65                  70                  75

Pro Leu Gly Lys Lys Leu Asn Val Thr Thr Ala Trp Lys Ala Gln
                80                  85                  90

Asn Pro Val Leu Arg Glu Val Val Asp Ile Leu Thr Glu Gln Leu
                95                  100                 105

Arg Asp Ile Gln Leu Glu Asn Tyr Thr Pro Lys Glu Pro Leu Thr
                110                 115                 120

Leu Gln Ala Arg Met Ser Cys Glu Gln Lys Ala Glu Gly His Ser
                125                 130                 135

Ser Gly Ser Trp Gln Phe Ser Phe Asp Gly Gln Ile Phe Leu Leu
                140                 145                 150

Phe Asp Ser Glu Lys Arg Met Trp Thr Thr Val His Pro Gly Ala
                155                 160                 165

Arg Lys Met Lys Glu Lys Trp Glu Asn Asp Lys Val Val Ala Met
                170                 175                 180

Ser Phe His Tyr Phe Ser Met Gly Asp Cys Ile Gly Trp Leu Glu
                185                 190                 195

Asp Phe Leu Met Gly Met Asp Ser Thr Leu Glu Pro Ser Ala Gly
                200                 205                 210

Ala Pro Leu Ala Met Ser Ser Gly Thr Thr Gln Leu Arg Ala Thr
                215                 220                 225

Ala Thr Thr Leu Ile Leu Cys Cys Leu Leu Ile Ile Leu Pro Cys
                230                 235                 240

Phe Ile Leu Pro Gly Ile
                245
```

<210> 226
<211> 735
<212> DNA
<213> Homo sapiens

<400> 226

```
gggaaagcca tttcgaaaac ccatctatac aaactatata ttttcatttc  50

tgctgctagc tgccttgggc ctcacaattt tcattctgtt ttctgacttt 100

caagttatat accgtggaat ggagttgatc ccaaccataa catcgtggag 150
```

```
ggttttaatt ttggtggtag ccctcaccca attctggtgt ggctttcttt 200

gcagaggatt ccaccttcaa aatcatgaac tctggctgtt gatcaaaaga 250

gaatttggat tctactctaa aagtcaatat aggacttggc aaaagaagct 300

agcagaagac tcaacctggc ctcccataaa caggacagat tattcaggtg 350

atggcaaaaa tggattctac atcaacggag gctatgaaag ccatgaacag 400

attccaaaaa gaaaactcaa attgggaggc caacccacag aacagcattt 450

ctgggccagg ctgtaatcag aattgtcgtc gtacatgctc aacagcattg 500

ctttttttccc caaaattaac acattgtgga gaagtgatga tactctcccc 550

ttacctttcc tctctccatt caagcattca aagtatattt tcaatgaatt 600

aaaccttgca gcaagggacc ttagataggc ttattctgac tgtatgcttt 650

accaatgaga gaaaaaaatg catttcctgt atcatccttt tcaataaact 700   .

gtattcattt tgaaaaaaaa aaaaaaaaaa aaaaa 735
```

<210> 227
<211> 115
<212> PRT
<213> Homo sapiens

<400> 227

```
Met Glu Leu Ile Pro Thr Ile Thr Ser Trp Arg Val Leu Ile Leu
1               5                   10                  15

Val Val Ala Leu Thr Gln Phe Trp Cys Gly Phe Leu Cys Arg Gly
                20                  25                  30

Phe His Leu Gln Asn His Glu Leu Trp Leu Leu Ile Lys Arg Glu
                35                  40                  45

Phe Gly Phe Tyr Ser Lys Ser Gln Tyr Arg Thr Trp Gln Lys Lys
                50                  55                  60

Leu Ala Glu Asp Ser Thr Trp Pro Pro Ile Asn Arg Thr Asp Tyr
                65                  70                  75

Ser Gly Asp Gly Lys Asn Gly Phe Tyr Ile Asn Gly Gly Tyr Glu
                80                  85                  90

Ser His Glu Gln Ile Pro Lys Arg Lys Leu Lys Leu Gly Gly Gln
                95                  100                 105

Pro Thr Glu Gln His Phe Trp Ala Arg Leu
                110                 115
```

<210> 228
<211> 2185
<212> DNA
<213> Homo sapiens

<400> 228

```
gttctccttt ccgagccaaa atcccaggcg atggtgaatt atgaacgtgc 50

cacaccatga agctcttgtg gcaggtaact gtgcaccacc acacctggaa 100
```

202

```
tgccatcctg ctcccgttcg tctacctcac ggcgcaagtg tggattctgt 150

gtgcagccat cgctgctgcc gcctcagccg ggccccagaa ctgcccctcc 200

gtttgctcgt gcagtaacca gttcagcaag gtggtgtgca cgcgccgggg 250

cctctccgag gtcccgcagg gtattccctc gaacacccgg tacctcaacc 300

tcatggagaa caacatccag atgatccagg ccgacacctt ccgccacctc 350

caccacctgg aggtcctgca gttgggcagg aactccatcc ggcagattga 400

ggtgggggcc ttcaacggcc tggccagcct caacaccctg gagctgttcg 450

acaactggct gacagtcatc cctagcgggg cctttgaata cctgtccaag 500

ctgcgggagc tctggcttcg caacaacccc atcgaaagca tcccctctta 550

cgccttcaac cgggtgccct ccctcatgcg cctggacttg ggggagctca 600

agaagctgga gtatatctct gagggagctt ttgaggggct gttcaacctc 650

aagtatctga acttgggcat gtgcaacatt aaagacatgc ccaatctcac 700

ccccctggtg gggctggagg agctggagat gtcagggaac cacttccctg 750

agatcaggcc tggctccttc catggcctga gctccctcaa gaagctctgg 800

gtcatgaact cacaggtcag cctgattgag cggaatgctt ttgacgggct 850

ggcttcactt gtggaactca acttggccca caataacctc tcttctttgc 900

cccatgacct ctttacccct ctgaggtacc tggtggagtt gcatctacac 950

cacaacccтt ggaactgtga ttgtgacatt ctgtggctag cctggtggct 1000

tcgagagtat atacccacca attccacctg ctgtggccgc tgtcatgctc 1050

ccatgcacat gcgaggccgc tacctcgtgg aggtggacca ggcctccttc 1100

cagtgctctg ccccccttcat catggacgca cctcgagacc tcaacatttc 1150

tgagggtcgg atggcagaac ttaagtgtcg gactcccccct atgtcctccg 1200

tgaagtggtt gctgcccaat gggacagtgc tcagccacgc ctcccgccac 1250

ccaaggatct ctgtcctcaa cgacggcacc ttgaactttt cccacgtgct 1300

gctttcagac actggggtgt acacatgcat ggtgaccaat gttgcaggca 1350

actccaacgc ctcggcctac ctcaatgtga gcacggctga gcttaacacc 1400

tccaactaca gcttcttcac cacagtaaca gtggagacca cggagatctc 1450

gcctgaggac acaacgcgaa agtacaagcc tgttcctacc acgtccactg 1500

gttaccagcc ggcatatacc acctctacca cggtgctcat tcagactacc 1550

cgtgtgccca agcaggtggc agtacccgcg acagacacca ctgacaagat 1600

gcagaccagc ctggatgaag tcatgaagac caccaagatc atcattggct 1650

gctttgtggc agtgactctg ctagctgccg ccatgttgat tgtcttctat 1700
```

203

```
aaacttcgta agcggcacca gcagcggagt acagtcacag ccgcccggac 1750

tgttgagata atccaggtgg acgaagacat cccagcagca acatccgcag 1800

cagcaacagc agctccgtcc ggtgtatcag gtgaggggggc agtagtgctg 1850

cccacaattc atgaccatat taactacaac acctacaaac cagcacatgg 1900

ggcccactgg acagaaaaca gcctgggaa ctctctgcac cccacagtca 1950

ccactatctc tgaaccttat ataattcaga cccataccaa ggacaaggta 2000

caggaaactc aaatatgact cccctccccc aaaaaactta taaaatgcaa 2050

tagaatgcac acaaagacag caactttgt acagagtggg gagagacttt 2100

ttcttgtata tgcttatata ttaagtctat gggctggtta aaaaaaacag 2150

attatattaa aatttaaaga caaaaagtca aaaca 2185
```

<210> 229
<211> 653
<212> PRT
<213> Homo sapiens

<400> 229
```
Met Lys Leu Leu Trp Gln Val Thr Val His His His Thr Trp Asn
  1               5                  10                      15

Ala Ile Leu Leu Pro Phe Val Tyr Leu Thr Ala Gln Val Trp Ile
             20                  25                      30

Leu Cys Ala Ala Ile Ala Ala Ala Ala Ser Ala Gly Pro Gln Asn
             35                  40                      45

Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val Val
             50                  55                      60

Cys Thr Arg Arg Gly Leu Ser Glu Val Pro Gln Gly Ile Pro Ser
             65                  70                      75

Asn Thr Arg Tyr Leu Asn Leu Met Glu Asn Asn Ile Gln Met Ile
             80                  85                      90

Gln Ala Asp Thr Phe Arg His Leu His His Leu Glu Val Leu Gln
             95                 100                     105

Leu Gly Arg Asn Ser Ile Arg Gln Ile Glu Val Gly Ala Phe Asn
            110                 115                     120

Gly Leu Ala Ser Leu Asn Thr Leu Glu Leu Phe Asp Asn Trp Leu
            125                 130                     135

Thr Val Ile Pro Ser Gly Ala Phe Glu Tyr Leu Ser Lys Leu Arg
            140                 145                     150

Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser Tyr
            155                 160                     165

Ala Phe Asn Arg Val Pro Ser Leu Met Arg Leu Asp Leu Gly Glu
            170                 175                     180

Leu Lys Lys Leu Glu Tyr Ile Ser Glu Gly Ala Phe Glu Gly Leu
```

204

Phe Asn Leu Lys Tyr Leu Asn Leu Gly Met Cys Asn Ile Lys Asp
                    200   205   210

Met Pro Asn Leu Thr Pro Leu Val Gly Leu Glu Glu Leu Glu Met
                    215   220   225

Ser Gly Asn His Phe Pro Glu Ile Arg Pro Gly Ser Phe His Gly
                    230   235   240

Leu Ser Ser Leu Lys Lys Leu Trp Val Met Asn Ser Gln Val Ser
                    245   250   255

Leu Ile Glu Arg Asn Ala Phe Asp Gly Leu Ala Ser Leu Val Glu
                    260   265   270

Leu Asn Leu Ala His Asn Asn Leu Ser Ser Leu Pro His Asp Leu
                    275   280   285

Phe Thr Pro Leu Arg Tyr Leu Val Glu Leu His Leu His His Asn
                    290   295   300

Pro Trp Asn Cys Asp Cys Asp Ile Leu Trp Leu Ala Trp Trp Leu
                    305   310   315

Arg Glu Tyr Ile Pro Thr Asn Ser Thr Cys Cys Gly Arg Cys His
                    320   325   330

Ala Pro Met His Met Arg Gly Arg Tyr Leu Val Glu Val Asp Gln
                    335   340   345

Ala Ser Phe Gln Cys Ser Ala Pro Phe Ile Met Asp Ala Pro Arg
                    350   355   360

Asp Leu Asn Ile Ser Glu Gly Arg Met Ala Glu Leu Lys Cys Arg
                    365   370   375

Thr Pro Pro Met Ser Ser Val Lys Trp Leu Leu Pro Asn Gly Thr
                    380   385   390

Val Leu Ser His Ala Ser Arg His Pro Arg Ile Ser Val Leu Asn
                    395   400   405

Asp Gly Thr Leu Asn Phe Ser His Val Leu Leu Ser Asp Thr Gly
                    410   415   420

Val Tyr Thr Cys Met Val Thr Asn Val Ala Gly Asn Ser Asn Ala
                    425   430   435

Ser Ala Tyr Leu Asn Val Ser Thr Ala Glu Leu Asn Thr Ser Asn
                    440   445   450

Tyr Ser Phe Phe Thr Thr Val Thr Val Glu Thr Thr Glu Ile Ser
                    455   460   465

Pro Glu Asp Thr Thr Arg Lys Tyr Lys Pro Val Pro Thr Thr Ser
                    470   475   480

Thr Gly Tyr Gln Pro Ala Tyr Thr Thr Ser Thr Thr Val Leu Ile
                    485   490   495

Gln Thr Thr Arg Val Pro Lys Gln Val Ala Val Pro Ala Thr Asp

```
                    500                 505                 510
Thr Thr Asp Lys Met Gln Thr Ser Leu Asp Glu Val Met Lys Thr
                515                 520                 525
Thr Lys Ile Ile Ile Gly Cys Phe Val Ala Val Thr Leu Leu Ala
                530                 535                 540
Ala Ala Met Leu Ile Val Phe Tyr Lys Leu Arg Lys Arg His Gln
                545                 550                 555
Gln Arg Ser Thr Val Thr Ala Ala Arg Thr Val Glu Ile Ile Gln
                560                 565                 570
Val Asp Glu Asp Ile Pro Ala Ala Thr Ser Ala Ala Ala Thr Ala
                575                 580                 585
Ala Pro Ser Gly Val Ser Gly Glu Gly Ala Val Val Leu Pro Thr
                590                 595                 600
Ile His Asp His Ile Asn Tyr Asn Thr Tyr Lys Pro Ala His Gly
                605                 610                 615
Ala His Trp Thr Glu Asn Ser Leu Gly Asn Ser Leu His Pro Thr
                620                 625                 630
Val Thr Thr Ile Ser Glu Pro Tyr Ile Ile Gln Thr His Thr Lys
                635                 640                 645
Asp Lys Val Gln Glu Thr Gln Ile
                650
```

<210> 230
<211> 2846
<212> DNA
<213> Homo sapiens

<400> 230
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cgctcgggca ccagccgcgg caaggatgga gctgggttgc tggacgcagt 50

tggggctcac ttttcttcag ctccttctca tctcgtcctt gccaagagag 100

tacacagtca ttaatgaagc ctgccctgga gcagagtgga atatcatgtg 150

tcgggagtgc tgtgaatatg atcagattga gtgcgtctgc cccggaaaga 200

gggaagtcgt gggttatacc atcccttgct gcaggaatga ggagaatgag 250

tgtgactcct gcctgatcca cccaggttgt accatctttg aaaactgcaa 300

gagctgccga aatggctcat gggggggtac cttggatgac ttctatgtga 350

aggggttcta ctgtgcagag tgccgagcag gctggtacgg aggagactgc 400

atgcgatgtg gccaggttct gcgagcccca aagggtcaga ttttgttgga 450

aagctatccc ctaaatgctc actgtgaatg gaccattcat gctaaacctg 500

ggtttgtcat ccaactaaga tttgtcatgt tgagtctgga gtttgactac 550

atgtgccagt atgactatgt tgaggttcgt gatggagaca accgcgatgg 600

ccagatcatc aagcgtgtct gtggcaacga gcggccagct cctatccaga 650
```

206

```
gcataggatc ctcactccac gtcctcttcc actccgatgg ctccaagaat 700

tttgacggtt tccatgccat ttatgaggag atcacagcat gctcctcatc 750

cccttgtttc catgacggca cgtgcgtcct tgacaaggct ggatcttaca 800

agtgtgcctg cttggcaggc tatactgggc agcgctgtga aaatctcctt 850

gaagaaagaa actgctcaga ccctgggggc ccagtcaatg ggtaccagaa 900

aataacaggg ggccctgggc ttatcaacgg acgccatgct aaaattggca 950

ccgtggtgtc tttctttgt aacaactcct atgttcttag tggcaatgag 1000

aaaagaactt gccagcagaa tggagagtgg tcaggaaac agcccatctg 1050

cataaaagcc tgccgagaac caaagatttc agacctggtg agaaggagag 1100

ttcttccgat gcaggttcag tcaagggaga caccattaca ccagctatac 1150

tcagcggcct tcagcaagca gaaactgcag agtgcccta ccaagaagcc 1200

agcccttccc tttggagatc tgcccatggg ataccaacat ctgcataccc 1250

agctccagta tgagtgcatc tcacccttct accgccgcct gggcagcagc 1300

aggaggacat gtctgaggac tgggaagtgg agtgggcggg caccatcctg 1350

catccctatc tgcgggaaaa ttgagaacat cactgctcca aagacccaag 1400

ggttgcgctg gccgtggcag gcagccatct acaggaggac cagcggggtg 1450

catgacggca gcctacacaa gggagcgtgg ttcctagtct gcagcggtgc 1500

cctggtgaat gagcgcactg tggtggtggc tgcccactgt gttactgacc 1550

tggggaaggt caccatgatc aagacagcag acctgaaagt tgttttgggg 1600

aaattctacc gggatgatga ccgggatgag aagaccatcc agagcctaca 1650

gatttctgct atcattctgc atcccaacta tgaccccatc ctgcttgatg 1700

ctgacatcgc catcctgaag ctcctagaca aggcccgtat cagcacccga 1750

gtccagccca tctgcctcgc tgccagtcgg gatctcagca cttccttcca 1800

ggagtcccac atcactgtgg ctggctggaa tgtcctggca gacgtgagga 1850

gccctggctt caagaacgac acactgcgct ctggggtggt cagtgtggtg 1900

gactcgctgc tgtgtgagga gcagcatgag gaccatggca tcccagtgag 1950

tgtcactgat aacatgttct gtgccagctg ggaacccact gccccttctg 2000

atatctgcac tgcagagaca ggaggcatcg cggctgtgtc cttcccggga 2050

cgagcatctc ctgagccacg ctggcatctg atgggactgg tcagctggag 2100

ctatgataaa acatgcagcc acaggctctc cactgccttc accaaggtgc 2150

tgccttttaa agactggatt gaaagaaata tgaaatgaac catgctcatg 2200

cactccttga gaagtgtttc tgtatatccg tctgtacgtg tgtcattgcg 2250
```

207

```
tgaagcagtg tgggcctgaa gtgtgatttg gcctgtgaac ttggctgtgc 2300

cagggcttct gacttcaggg acaaaactca gtgaagggtg agtagacctc 2350

cattgctggt aggctgatgc cgcgtccact actaggacag ccaattggaa 2400

gatgccaggg cttgcaagaa gtaagtttct tcaaagaaga ccatatacaa 2450

aacctctcca ctccactgac ctggtggtct tccccaactt tcagttatac 2500

gaatgccatc agcttgacca gggaagatct gggcttcatg aggccccttt 2550

tgaggctctc aagttctaga gagctgcctg tgggacagcc cagggcagca 2600

gagctgggat gtggtgcatg cctttgtgta catggccaca gtacagtctg 2650

gtccttttcc ttccccatct cttgtacaca ttttaataaa ataaggggttg 2700

gcttctgaac tacaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2750

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2800

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 2846
```

<210> 231
<211> 720
<212> PRT
<213> Homo sapiens

<400> 231
```
Met Glu Leu Gly Cys Trp Thr Gln Leu Gly Leu Thr Phe Leu Gln
1               5                   10                  15

Leu Leu Leu Ile Ser Ser Leu Pro Arg Glu Tyr Thr Val Ile Asn
                20                  25                  30

Glu Ala Cys Pro Gly Ala Glu Trp Asn Ile Met Cys Arg Glu Cys
                35                  40                  45

Cys Glu Tyr Asp Gln Ile Glu Cys Val Cys Pro Gly Lys Arg Glu
                50                  55                  60

Val Val Gly Tyr Thr Ile Pro Cys Cys Arg Asn Glu Glu Asn Glu
                65                  70                  75

Cys Asp Ser Cys Leu Ile His Pro Gly Cys Thr Ile Phe Glu Asn
                80                  85                  90

Cys Lys Ser Cys Arg Asn Gly Ser Trp Gly Gly Thr Leu Asp Asp
                95                  100                 105

Phe Tyr Val Lys Gly Phe Tyr Cys Ala Glu Cys Arg Ala Gly Trp
                110                 115                 120

Tyr Gly Gly Asp Cys Met Arg Cys Gly Gln Val Leu Arg Ala Pro
                125                 130                 135

Lys Gly Gln Ile Leu Leu Glu Ser Tyr Pro Leu Asn Ala His Cys
                140                 145                 150

Glu Trp Thr Ile His Ala Lys Pro Gly Phe Val Ile Gln Leu Arg
                155                 160                 165
```

```
Phe Val Met Leu Ser Leu Glu Phe Asp Tyr Met Cys Gln Tyr Asp
                170                 175                 180

Tyr Val Glu Val Arg Asp Gly Asp Asn Arg Asp Gly Gln Ile Ile
                185                 190                 195

Lys Arg Val Cys Gly Asn Glu Arg Pro Ala Pro Ile Gln Ser Ile
                200                 205                 210

Gly Ser Ser Leu His Val Leu Phe His Ser Asp Gly Ser Lys Asn
                215                 220                 225

Phe Asp Gly Phe His Ala Ile Tyr Glu Glu Ile Thr Ala Cys Ser
                230                 235                 240

Ser Ser Pro Cys Phe His Asp Gly Thr Cys Val Leu Asp Lys Ala
                245                 250                 255

Gly Ser Tyr Lys Cys Ala Cys Leu Ala Gly Tyr Thr Gly Gln Arg
                260                 265                 270

Cys Glu Asn Leu Leu Glu Glu Arg Asn Cys Ser Asp Pro Gly Gly
                275                 280                 285

Pro Val Asn Gly Tyr Gln Lys Ile Thr Gly Gly Pro Gly Leu Ile
                290                 295                 300

Asn Gly Arg His Ala Lys Ile Gly Thr Val Val Ser Phe Phe Cys
                305                 310                 315

Asn Asn Ser Tyr Val Leu Ser Gly Asn Glu Lys Arg Thr Cys Gln
                320                 325                 330

Gln Asn Gly Glu Trp Ser Gly Lys Gln Pro Ile Cys Ile Lys Ala
                335                 340                 345

Cys Arg Glu Pro Lys Ile Ser Asp Leu Val Arg Arg Arg Val Leu
                350                 355                 360

Pro Met Gln Val Gln Ser Arg Glu Thr Pro Leu His Gln Leu Tyr
                365                 370                 375

Ser Ala Ala Phe Ser Lys Gln Lys Leu Gln Ser Ala Pro Thr Lys
                380                 385                 390

Lys Pro Ala Leu Pro Phe Gly Asp Leu Pro Met Gly Tyr Gln His
                395                 400                 405

Leu His Thr Gln Leu Gln Tyr Glu Cys Ile Ser Pro Phe Tyr Arg
                410                 415                 420

Arg Leu Gly Ser Ser Arg Arg Thr Cys Leu Arg Thr Gly Lys Trp
                425                 430                 435

Ser Gly Arg Ala Pro Ser Cys Ile Pro Ile Cys Gly Lys Ile Glu
                440                 445                 450

Asn Ile Thr Ala Pro Lys Thr Gln Gly Leu Arg Trp Pro Trp Gln
                455                 460                 465

Ala Ala Ile Tyr Arg Arg Thr Ser Gly Val His Asp Gly Ser Leu
                470                 475                 480
```

```
His Lys Gly Ala Trp Phe Leu Val Cys Ser Gly Ala Leu Val Asn
                485                 490                 495

Glu Arg Thr Val Val Val Ala Ala His Cys Val Thr Asp Leu Gly
                500                 505                 510

Lys Val Thr Met Ile Lys Thr Ala Asp Leu Lys Val Val Leu Gly
                515                 520                 525

Lys Phe Tyr Arg Asp Asp Asp Arg Asp Glu Lys Thr Ile Gln Ser
                530                 535                 540

Leu Gln Ile Ser Ala Ile Ile Leu His Pro Asn Tyr Asp Pro Ile
                545                 550                 555

Leu Leu Asp Ala Asp Ile Ala Ile Leu Lys Leu Leu Asp Lys Ala
                560                 565                 570

Arg Ile Ser Thr Arg Val Gln Pro Ile Cys Leu Ala Ala Ser Arg
                575                 580                 585

Asp Leu Ser Thr Ser Phe Gln Glu Ser His Ile Thr Val Ala Gly
                590                 595                 600

Trp Asn Val Leu Ala Asp Val Arg Ser Pro Gly Phe Lys Asn Asp
                605                 610                 615

Thr Leu Arg Ser Gly Val Val Ser Val Val Asp Ser Leu Leu Cys
                620                 625                 630

Glu Glu Gln His Glu Asp His Gly Ile Pro Val Ser Val Thr Asp
                635                 640                 645

Asn Met Phe Cys Ala Ser Trp Glu Pro Thr Ala Pro Ser Asp Ile
                650                 655                 660

Cys Thr Ala Glu Thr Gly Gly Ile Ala Ala Val Ser Phe Pro Gly
                665                 670                 675

Arg Ala Ser Pro Glu Pro Arg Trp His Leu Met Gly Leu Val Ser
                680                 685                 690

Trp Ser Tyr Asp Lys Thr Cys Ser His Arg Leu Ser Thr Ala Phe
                695                 700                 705

Thr Lys Val Leu Pro Phe Lys Asp Trp Ile Glu Arg Asn Met Lys
                710                 715                 720
```

<210> 232
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 232
 aggttcgtga tggagacaac cgcg 24

<210> 233
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 233
 tgtcaaggac gcactgccgt catg 24

<210> 234
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 234
 tggccagatc atcaagcgtg tctgtggcaa cgagcggcca gctcctatcc 50

<210> 235
<211> 1964
<212> DNA
<213> Homo sapiens

<400> 235
 accaggcatt gtatcttcag ttgtcatcaa gttcgcaatc agattggaaa 50

 agctcaactt gaagctttct tgcctgcagt gaagcagaga gatagatatt 100

 attcacgtaa taaaaaacat gggcttcaac ctgactttcc acctttccta 150

 caaattccga ttactgttgc tgttgacttt gtgcctgaca gtggttgggt 200

 gggccaccag taactacttc gtgggtgcca ttcaagagat tcctaaagca 250

 aaggagttca tggctaattt ccataagacc ctcattttgg ggaagggaaa 300

 aactctgact aatgaagcat ccacgaagaa ggtagaactt gacaactgtc 350

 cttctgtgtc tccttacctc agaggccaga gcaagctcat tttcaaacca 400

 gatctcactt tggaagaggt acaggcagaa aatcccaaag tgtccagagg 450

 ccggtatcgc cctcaggaat gtaaagcttt acagagggtc gccatcctcg 500

 ttccccaccg gaacagagag aaacacctga tgtacctgct ggaacatctg 550

 catcccttcc tgcagaggca gcagctggat tatggcatct acgtcatcca 600

 ccaggctgaa ggtaaaaagt ttaatcgagc caaactcttg aatgtgggct 650

 atctagaagc cctcaaggaa gaaaattggg actgctttat attccacgat 700

 gtggacctgg tacccgagaa tgactttaac ctttacaagt gtgaggagca 750

 tcccaagcat ctggtggttg gcaggaacag cactgggtac aggttacgtt 800

 acagtggata ttttgggggt gttactgccc taagcagaga gcagtttttc 850

 aaggtgaatg gattctctaa caactactgg ggatggggag gcgaagacga 900

 tgacctcaga ctcaggggttg agctccaaag aatgaaaatt tcccggcccc 950

 tgcctgaagt gggtaaatat acaatggtct tccacactag agacaaaggc 1000

211

```
aatgaggtga acgcagaacg gatgaagctc ttacaccaag tgtcacgagt 1050

ctggagaaca gatgggttga gtagttgttc ttataaatta gtatctgtgg 1100

aacacaatcc tttatatatc aacatcacag tggatttctg gtttggtgca 1150

tgaccctgga tcttttggtg atgtttggaa gaactgattc tttgtttgca 1200

ataattttgg cctagagact tcaaatagta gcacacatta agaacctgtt 1250

acagctcatt gttgagctga attttttcctt tttgtatttt cttagcagag 1300

ctcctggtga tgtagagtat aaaacagttg taacaagaca gctttcttag 1350

tcattttgat catgagggtt aaatattgta atatggatac ttgaaggact 1400

ttatataaaa ggatgactca aaggataaaa tgaacgctat ttgaggactc 1450

tggttgaagg agatttattt aaatttgaag taatatatta tgggataaaa 1500

ggccacagga aataagactg ctgaatgtct gagagaacca gagttgttct 1550

cgtccaaggt agaaaggtac gaagatacaa tactgttatt catttatcct 1600

gtacaatcat ctgtgaagtg gtggtgtcag gtgagaaggc gtccacaaaa 1650

gagggggaaa aaggcgacga atcaggacac agtgaacttg ggaatgaaga 1700

ggtagcagga gggtggagtg tcggctgcaa aggcagcagt agctgagctg 1750

gttgcaggtg ctgatagcct tcaggggagg acctgcccag gtatgccttc 1800

cagtgatgcc caccagagaa tacattctct attagttttt aaagagtttt 1850

tgtaaaatga ttttgtacaa gtaggatatg aattagcagt ttacaagttt 1900

acatattaac taataataaa tatgtctatc aaatacctct gtagtaaaat 1950

gtgaaaaagc aaaa 1964
```

<210> 236
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> Signal peptide
<222> 1-27
<223> Signal peptide

<220>
<221> N-glycosylation sites
<222> 4-7, 220-223, 335-338
<223> N-glycosylation sites

<220>
<221> Xylose isomerase proteins
<222> 191-201
<223> Xylose isomerase proteins

<400> 236
```
Met Gly Phe Asn Leu Thr Phe His Leu Ser Tyr Lys Phe Arg Leu
 1               5                  10                      15
```

```
Leu Leu Leu Leu Thr Leu Cys Leu Thr Val Val Gly Trp Ala Thr
            20          25                      30

Ser Asn Tyr Phe Val Gly Ala Ile Gln Glu Ile Pro Lys Ala Lys
            35          40                      45

Glu Phe Met Ala Asn Phe His Lys Thr Leu Ile Leu Gly Lys Gly
            50          55                      60

Lys Thr Leu Thr Asn Glu Ala Ser Thr Lys Lys Val Glu Leu Asp
            65          70                      75

Asn Cys Pro Ser Val Ser Pro Tyr Leu Arg Gly Gln Ser Lys Leu
            80          85                      90

Ile Phe Lys Pro Asp Leu Thr Leu Glu Glu Val Gln Ala Glu Asn
            95          100                     105

Pro Lys Val Ser Arg Gly Arg Tyr Arg Pro Gln Glu Cys Lys Ala
            110         115                     120

Leu Gln Arg Val Ala Ile Leu Val Pro His Arg Asn Arg Glu Lys
            125         130                     135

His Leu Met Tyr Leu Leu Glu His Leu His Pro Phe Leu Gln Arg
            140         145                     150

Gln Gln Leu Asp Tyr Gly Ile Tyr Val Ile His Gln Ala Glu Gly
            155         160                     165

Lys Lys Phe Asn Arg Ala Lys Leu Leu Asn Val Gly Tyr Leu Glu
            170         175                     180

Ala Leu Lys Glu Glu Asn Trp Asp Cys Phe Ile Phe His Asp Val
            185         190                     195

Asp Leu Val Pro Glu Asn Asp Phe Asn Leu Tyr Lys Cys Glu Glu
            200         205                     210

His Pro Lys His Leu Val Val Gly Arg Asn Ser Thr Gly Tyr Arg
            215         220                     225

Leu Arg Tyr Ser Gly Tyr Phe Gly Gly Val Thr Ala Leu Ser Arg
            230         235                     240

Glu Gln Phe Phe Lys Val Asn Gly Phe Ser Asn Asn Tyr Trp Gly
            245         250                     255

Trp Gly Gly Glu Asp Asp Asp Leu Arg Leu Arg Val Glu Leu Gln
            260         265                     270

Arg Met Lys Ile Ser Arg Pro Leu Pro Glu Val Gly Lys Tyr Thr
            275         280                     285

Met Val Phe His Thr Arg Asp Lys Gly Asn Glu Val Asn Ala Glu
            290         295                     300

Arg Met Lys Leu Leu His Gln Val Ser Arg Val Trp Arg Thr Asp
            305         310                     315

Gly Leu Ser Ser Cys Ser Tyr Lys Leu Val Ser Val Glu His Asn
            320         325                     330
```

```
Pro Leu Tyr Ile Asn Ile Thr Val Asp Phe Trp Phe Gly Ala
                335                     340

<210> 237
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 237
 ccttacctca gaggccagag caagc 25

<210> 238
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 238
 gagcttcatc cgttctgcgt tcacc 25

<210> 239
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 239
 caggaatgta aagctttaca gagggtcgcc atcctcgttc cccacc 46

<210> 240
<211> 2567
<212> DNA
<213> Homo sapiens

<400> 240
 cgtgggccgg ggtcgcgcag cgggctgtgg gcgcgcccgg aggagcgacc 50

 gccgcagttc tcgagctcca gctgcattcc ctccgcgtcc gccccacgct 100

 tctcccgctc cgggcccccgc aatggcccag gcagtgtggt cgcgcctcgg 150

 ccgcatcctc tggcttgcct gcctcctgcc ctgggccccg gcagggggtgg 200

 ccgcaggcct gtatgaactc aatctcacca ccgatagccc tgccaccacg 250

 ggagcggtgg tgaccatctc ggccagcctg gtggccaagg acaacggcag 300

 cctggccctg cccgctgacg cccacctcta ccgcttccac tggatccaca 350

 ccccgctggt gcttactggc aagatggaga agggtctcag ctccaccatc 400

 cgtgtggtcg gccacgtgcc cggggaattc ccggtctctg tctgggtcac 450

 tgccgctgac tgctggatgt gccagcctgt ggccaggggc tttgtggtcc 500

 tccccatcac agagttcctc gtgggggacc ttgttgtcac ccagaacact 550
```

214

```
tccctaccct ggcccagctc ctatctcact aagaccgtcc tgaaagtctc 600

cttcctcctc cacgacccga gcaacttcct caagaccgcc ttgtttctct 650

acagctggga cttcggggac gggacccaga tggtgactga agactccgtg 700

gtctattata actattccat catcgggacc ttcaccgtga agctcaaagt 750

ggtggcggag tgggaagagg tggagccgga tgccacgagg gctgtgaagc 800

agaagaccgg ggacttctcc gcctcgctga agctgcagga aacccttcga 850

ggcatccaag tgttggggcc caccctaatt cagaccttcc aaaagatgac 900

cgtgaccttg aacttcctgg ggagccctcc tctgactgtg tgctggcgtc 950

tcaagcctga gtgcctcccg ctggaggaag gggagtgcca ccctgtgtcc 1000

gtggccagca cagcgtacaa cctgacccac accttcaggg accctgggga 1050

ctactgcttc agcatccggg ccgagaatat catcagcaag acacatcagt 1100

accacaagat ccaggtgtgg ccctccagaa tccagccggc tgtctttgct 1150

ttcccatgtg ctacacttat cactgtgatg ttggccttca tcatgtacat 1200

gaccctgcgg aatgccactc agcaaaagga catggtggag aacccggagc 1250

caccctctgg ggtcaggtgc tgctgccaga tgtgctgtgg gccttttcttg 1300

ctggagactc catctgagta cctggaaatt gttcgtgaga accacgggct 1350

gctcccgccc ctctataagt ctgtcaaaac ttacaccgtg tgagcactcc 1400

ccctcccccac cccatctcag tgttaactga ctgctgactt ggagtttcca 1450

gcagggtggt gtgcaccact gaccaggagg ggttcatttg cgtggggctg 1500

ttggcctgga tcatccatcc atctgtacag ttcagccact gccacaagcc 1550

cctccctctc tgtcacccct gaccccagcc attcacccat ctgtacagtc 1600

cagccactga cataagcccc actcggttac cacccccttg accccctacc 1650

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gtgccagaga gctagaaaga aggtcataaa gggttaaaaa tccataacta 1850

aaggttgtac acatagatgg gcacactcac agagagaagt gtgcatgtac 1900

acacaccaca cacacacaca cacacacaca cacagaaata taaacacatg 1950

cgtcacatgg gcatttcaga tgatcagctc tgtatctggt taagtcggtt 2000

gctgggatgc accctgcact agagctgaaa ggaaatttga cctccaagca 2050

gccctgacag gttctgggcc cgggccctcc ctttgtgctt tgtctctgca 2100

gttcttgcgc cctttataag gccatcctag tccctgctgg ctggcagggg 2150
```

215

```
cctggatggg gggcaggact aatactgagt gattgcagag tgctttataa 2200

atatcacctt attttatcga aacccatctg tgaaactttc actgaggaaa 2250

aggccttgca gcggtagaag aggttgagtc aaggccgggc gcggtggctc 2300

acgcctgtaa tcccagcact ttgggaggcc gaggcgggtg gatcacgaga 2350

tcaggagatc gagaccaccc tggctaacac ggtgaaaccc cgtctctact 2400

aaaaaaatac aaaaagttag ccgggcgtgg tggtgggtgc ctgtagtccc 2450

agctactcgg gaggctgagg caggagaatg gtgcgaaccc gggaggcgga 2500

gcttgcagtg agcccagatg gcgccactgc actccagcct gagtgacaga 2550

gcgagactct gtctcca 2567
```

<210> 241
<211> 423
<212> PRT
<213> Homo sapiens

<400> 241

```
Met Ala Gln Ala Val Trp Ser Arg Leu Gly Arg Ile Leu Trp Leu
 1               5                  10                  15

Ala Cys Leu Leu Pro Trp Ala Pro Ala Gly Val Ala Ala Gly Leu
                20                  25                  30

Tyr Glu Leu Asn Leu Thr Thr Asp Ser Pro Ala Thr Thr Gly Ala
                35                  40                  45

Val Val Thr Ile Ser Ala Ser Leu Val Ala Lys Asp Asn Gly Ser
                50                  55                  60

Leu Ala Leu Pro Ala Asp Ala His Leu Tyr Arg Phe His Trp Ile
                65                  70                  75

His Thr Pro Leu Val Leu Thr Gly Lys Met Glu Lys Gly Leu Ser
                80                  85                  90

Ser Thr Ile Arg Val Val Gly His Val Pro Gly Glu Phe Pro Val
                95                  100                 105

Ser Val Trp Val Thr Ala Ala Asp Cys Trp Met Cys Gln Pro Val
                110                 115                 120

Ala Arg Gly Phe Val Val Leu Pro Ile Thr Glu Phe Leu Val Gly
                125                 130                 135

Asp Leu Val Val Thr Gln Asn Thr Ser Leu Pro Trp Pro Ser Ser
                140                 145                 150

Tyr Leu Thr Lys Thr Val Leu Lys Val Ser Phe Leu Leu His Asp
                155                 160                 165

Pro Ser Asn Phe Leu Lys Thr Ala Leu Phe Leu Tyr Ser Trp Asp
                170                 175                 180

Phe Gly Asp Gly Thr Gln Met Val Thr Glu Asp Ser Val Val Tyr
                185                 190                 195
```

216

```
Tyr Asn Tyr Ser Ile Ile Gly Thr Phe Thr Val Lys Leu Lys Val
                200                 205                 210

Val Ala Glu Trp Glu Glu Val Glu Pro Asp Ala Thr Arg Ala Val
                215                 220                 225

Lys Gln Lys Thr Gly Asp Phe Ser Ala Ser Leu Lys Leu Gln Glu
                230                 235                 240

Thr Leu Arg Gly Ile Gln Val Leu Gly Pro Thr Leu Ile Gln Thr
                245                 250                 255

Phe Gln Lys Met Thr Val Thr Leu Asn Phe Leu Gly Ser Pro Pro
                260                 265                 270

Leu Thr Val Cys Trp Arg Leu Lys Pro Glu Cys Leu Pro Leu Glu
                275                 280                 285

Glu Gly Glu Cys His Pro Val Ser Val Ala Ser Thr Ala Tyr Asn
                290                 295                 300

Leu Thr His Thr Phe Arg Asp Pro Gly Asp Tyr Cys Phe Ser Ile
                305                 310                 315

Arg Ala Glu Asn Ile Ile Ser Lys Thr His Gln Tyr His Lys Ile
                320                 325                 330

Gln Val Trp Pro Ser Arg Ile Gln Pro Ala Val Phe Ala Phe Pro
                335                 340                 345

Cys Ala Thr Leu Ile Thr Val Met Leu Ala Phe Ile Met Tyr Met
                350                 355                 360

Thr Leu Arg Asn Ala Thr Gln Gln Lys Asp Met Val Glu Asn Pro
                365                 370                 375

Glu Pro Pro Ser Gly Val Arg Cys Cys Cys Gln Met Cys Cys Gly
                380                 385                 390

Pro Phe Leu Leu Glu Thr Pro Ser Glu Tyr Leu Glu Ile Val Arg
                395                 400                 405

Glu Asn His Gly Leu Leu Pro Pro Leu Tyr Lys Ser Val Lys Thr
                410                 415                 420

Tyr Thr Val


<210> 242
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 242
 catttcctta ccctggaccc agctcc 26

<210> 243
<211> 25
<212> DNA
<213> Artificial Sequence
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<220>
<223> Synthetic oligonucleotide probe

<400> 243
gaaaggccca cagcacatct ggcag 25

<210> 244
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 244
ccacgacccg agcaacttcc tcaagaccga cttgtttctc tacagc 46

<210> 245
<211> 485
<212> DNA
<213> Homo sapiens

<400> 245
gctcaagacc cagcagtggg acagccagac agacggcacg atggcactga 50

gctcccagat ctgggccgct tgcctcctgc tcctcctcct cctcgccagc 100

ctgaccagtg gctctgtttt cccacaacag acgggacaac ttgcagagct 150

gcaaccccag gacagagctg gagccagggc cagctggatg cccatgttcc 200

agaggcgaag gaggcgagac acccacttcc ccatctgcat tttctgctgc 250

ggctgctgtc atcgatcaaa gtgtgggatg tgctgcaaga cgtagaacct 300

acctgccctg ccccggtccc ctcccttcct tatttattcc tgctgcccca 350

gaacataggt cttggaataa aatggctggt tcttttgttt tccaaaaaaa 400

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 450

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa 485

<210> 246
<211> 84
<212> PRT
<213> Homo sapiens

<400> 246
Met Ala Leu Ser Ser Gln Ile Trp Ala Ala Cys Leu Leu Leu Leu
  1   5   10   15

Leu Leu Leu Ala Ser Leu Thr Ser Gly Ser Val Phe Pro Gln Gln
                 20   25   30

Thr Gly Gln Leu Ala Glu Leu Gln Pro Gln Asp Arg Ala Gly Ala
                 35   40   45

Arg Ala Ser Trp Met Pro Met Phe Gln Arg Arg Arg Arg Arg Asp
                 50   55   60

Thr His Phe Pro Ile Cys Ile Phe Cys Cys Gly Cys Cys His Arg
                 65   70   75

218

```
Ser Lys Cys Gly Met Cys Cys Lys Thr
                   80

<210> 247
<211> 2359
<212> DNA
<213> Homo sapiens

<400> 247
ctgtcaggaa ggaccatctg aaggctgcaa tttgttctta gggaggcagg  50

tgctggcctg gcctggatct tccaccatgt tcctgttgct gccttttgat 100

agcctgattg tcaaccttct gggcatctcc ctgactgtcc tcttcaccct 150

ccttctcgtt ttcatcatag tgccagccat ttttggagtc tcctttggta 200

tccgcaaact ctacatgaaa agtctgttaa aaatctttgc gtgggctacc 250

ttgagaatgg agcgaggagc caaggagaag aaccaccagc tttacaagcc 300

ctacaccaac ggaatcattg caaaggatcc cacttcacta gaagaagaga 350

tcaaagagat tcgtcgaagt ggtagtagta aggctctgga caacactcca 400

gagttcgagc tctctgacat tttctacttt tgccggaaag gaatggagac 450

cattatggat gatgaggtga caaagagatt ctcagcagaa gaactggagt 500

cctggaacct gctgagcaga accaattata acttccagta catcagcctt 550

cggctcacgg tcctgtgggg gttaggagtg ctgattcggt actgctttct 600

gctgccgctc aggatagcac tggctttcac agggattagc cttctggtgg 650

tgggcacaac tgtggtggga tacttgccaa atgggaggtt taaggaattc 700

atgagtaaac atgttcactt aatgtgttac cggatctgcg tgcgagcgct 750

gacagccatc atcacctacc atgacaggga aaacagacca agaaatggtg 800

gcatctgtgt ggccaatcat acctcaccga tcgatgtgat catcttggcc 850

agcgatggct attatgccat ggtgggtcaa gtgcacgggg gactcatggg 900

tgtgattcag agagccatgg tgaaggcctg cccacacgtc tggtttgagc 950

gctcggaagt gaaggatcgc cacctggtgg ctaagagact gactgaacat 1000

gtgcaagata aaagcaagct gcctatcctc atcttcccag aaggaacctg 1050

catcaataat acatcggtga tgatgttcaa aaagggaagt tttgaaattg 1100

gagccacagt ttaccctgtt gctatcaagt atgaccctca atttggcgat 1150

gccttctgga acagcagcaa atacgggatg gtgacgtacc tgctgcgaat 1200

gatgaccagc tgggccattg tctgcagcgt gtggtacctg cctcccatga 1250

ctagagaggc agatgaagat gctgtccagt ttgcgaatag ggtgaaatct 1300

gccattgcca ggcaggagg acttgtggac ctgctgtggg atgggggcct 1350
```

```
gaagagggag aaggtgaagg acacgttcaa ggaggagcag cagaagctgt 1400

acagcaagat gatcgtgggg aaccacaagg acaggagccg ctcctgagcc 1450

tgcctccagc tggctggggc caccgtgcgg ggtgccaacg ggctcagagc 1500

tggagttgcc gccgccgccc ccactgctgt gtcctttcca gactccaggg 1550

ctccccgggc tgctctggat cccaggactc cggctttcgc cgagccgcag 1600

cgggatccct gtgcacccgg cgcagcctac ccttggtggt ctaaacggat 1650

gctgctggt gttgcgaccc aggacgagat gccttgtttc ttttacaata 1700

agtcgttgga ggaatgccat taaagtgaac tccccacctt tgcacgctgt 1750

gcgggctgag tggttgggga gatgtggcca tggtcttgtg ctagagatgg 1800

cggtacaaga gtctgttatg caagcccgtg tgccagggat gtgctggggg 1850

cggccacccg ctctccagga aaggcacagc tgaggcactg tggctggctt 1900

cggcctcaac atcgcccca gccttggagc tctgcagaca tgataggaag 1950

gaaactgtca tctgcagggg ctttcagcaa aatgaagggt tagatttta 2000

tgctgctgct gatggggtta ctaaagggag gggaagaggc caggtgggcc 2050

gctgactggg ccatggggag aacgtgtgtt cgtactccag gctaaccctg 2100

aactccccat gtgatgcgcg ctttgttgaa tgtgtgtctc ggtttcccca 2150

tctgtaatat gagtcggggg gaatggtggt gattcctacc tcacagggct 2200

gttgtgggga ttaaagtgct gcgggtgagt gaaggacaca tcacgttcag 2250

tgtttcaagt acaggcccac aaaacggggc acggcaggcc tgagctcaga 2300

gctgctgcac tgggctttgg atttgttctt gtgagtaaat aaaactggct 2350

ggtgaatga 2359
```

<210> 248
<211> 456
<212> PRT
<213> Homo sapiens

<400> 248

```
Met Phe Leu Leu Leu Pro Phe Asp Ser Leu Ile Val Asn Leu Leu
 1               5                  10                  15

Gly Ile Ser Leu Thr Val Leu Phe Thr Leu Leu Leu Val Phe Ile
                20                  25                  30

Ile Val Pro Ala Ile Phe Gly Val Ser Phe Gly Ile Arg Lys Leu
                35                  40                  45

Tyr Met Lys Ser Leu Leu Lys Ile Phe Ala Trp Ala Thr Leu Arg
                50                  55                  60

Met Glu Arg Gly Ala Lys Glu Lys Asn His Gln Leu Tyr Lys Pro
                65                  70                  75
```

```
Tyr Thr Asn Gly Ile Ile Ala Lys Asp Pro Thr Ser Leu Glu Glu
             80                  85                      90

Glu Ile Lys Glu Ile Arg Arg Ser Gly Ser Ser Lys Ala Leu Asp
             95                 100                     105

Asn Thr Pro Glu Phe Glu Leu Ser Asp Ile Phe Tyr Phe Cys Arg
            110                 115                     120

Lys Gly Met Glu Thr Ile Met Asp Asp Glu Val Thr Lys Arg Phe
            125                 130                     135

Ser Ala Glu Glu Leu Glu Ser Trp Asn Leu Leu Ser Arg Thr Asn
            140                 145                     150

Tyr Asn Phe Gln Tyr Ile Ser Leu Arg Leu Thr Val Leu Trp Gly
            155                 160                     165

Leu Gly Val Leu Ile Arg Tyr Cys Phe Leu Leu Pro Leu Arg Ile
            170                 175                     180

Ala Leu Ala Phe Thr Gly Ile Ser Leu Leu Val Val Gly Thr Thr
            185                 190                     195

Val Val Gly Tyr Leu Pro Asn Gly Arg Phe Lys Glu Phe Met Ser
            200                 205                     210

Lys His Val His Leu Met Cys Tyr Arg Ile Cys Val Arg Ala Leu
            215                 220                     225

Thr Ala Ile Ile Thr Tyr His Asp Arg Glu Asn Arg Pro Arg Asn
            230                 235                     240

Gly Gly Ile Cys Val Ala Asn His Thr Ser Pro Ile Asp Val Ile
            245                 250                     255

Ile Leu Ala Ser Asp Gly Tyr Tyr Ala Met Val Gly Gln Val His
            260                 265                     270

Gly Gly Leu Met Gly Val Ile Gln Arg Ala Met Val Lys Ala Cys
            275                 280                     285

Pro His Val Trp Phe Glu Arg Ser Glu Val Lys Asp Arg His Leu
            290                 295                     300

Val Ala Lys Arg Leu Thr Glu His Val Gln Asp Lys Ser Lys Leu
            305                 310                     315

Pro Ile Leu Ile Phe Pro Glu Gly Thr Cys Ile Asn Asn Thr Ser
            320                 325                     330

Val Met Met Phe Lys Lys Gly Ser Phe Glu Ile Gly Ala Thr Val
            335                 340                     345

Tyr Pro Val Ala Ile Lys Tyr Asp Pro Gln Phe Gly Asp Ala Phe
            350                 355                     360

Trp Asn Ser Ser Lys Tyr Gly Met Val Thr Tyr Leu Leu Arg Met
            365                 370                     375

Met Thr Ser Trp Ala Ile Val Cys Ser Val Trp Tyr Leu Pro Pro
            380                 385                     390
```

221

```
Met Thr Arg Glu Ala Asp Glu Asp Ala Val Gln Phe Ala Asn Arg
                395                 400                 405

Val Lys Ser Ala Ile Ala Arg Gln Gly Gly Leu Val Asp Leu Leu
                410                 415                 420

Trp Asp Gly Gly Leu Lys Arg Glu Lys Val Lys Asp Thr Phe Lys
                425                 430                 435

Glu Glu Gln Gln Lys Leu Tyr Ser Lys Met Ile Val Gly Asn His
                440                 445                 450

Lys Asp Arg Ser Arg Ser
                455

<210> 249
<211> 1103
<212> DNA
<213> Homo sapiens

<400> 249
 gcccctcgaa accaggactc cagcacctct ggtcccgccc tcacccggac  50

 ccctggccct cacgtctcct ccaggatgg cgctggcggc tttgatgatc  100

 gccctcggca gcctcggcct ccacacctgg caggcccag ctgttcccac  150

 catcctgccc ctgggcctgg ctccagacac ctttgacgat acctatgtgg  200

 gttgtgcaga ggagatggag gagaaggcag cccccctgct aaaggaggaa  250

 atggcccacc atgccctgct gcgggaatcc tgggaggcag cccaggagac  300

 ctgggaggac aagcgtcgag ggcttacctt gcccctggc ttcaaagccc  350

 agaatggaat agccattatg gtctacacca actcatcgaa caccttgtac  400

 tgggagttga atcaggccgt gcggacgggc ggaggctccc gggagctcta  450

 catgaggcac tttcccttca aggccctgca tttctacctg atccgggccc  500

 tgcagctgct gcgaggcagt gggggctgca gcaggggacc tggggaggtg  550

 gtgttccgag gtgtgggcag ccttcgcttt gaacccaaga ggctggggga  600

 ctctgtccgc ttgggccagt ttgcctccag ctccctggat aaggcagtgg  650

 cccacagatt tggggagaag aggcggggct gtgtgtctgc gccagggtg  700

 cagctagggt cacaatctga gggggcctcc tctctgcccc cctggaagac  750

 tctgctcttg gcccctggag agttccagct ctcaggggtt gggccctgaa  800

 agtccaacat ctgccactta ggagccctgg gaacgggtga ccttcatatg  850

 acgaagaggc acctccagca gccttgagaa gcaagaacat ggttccggac  900

 ccagccctag cagccttctc cccaaccagg atgttggcct ggggaggcca  950

 cagcagggct gagggaactc tgctatgtga tggggacttc ctgggacaag  1000

 caaggaaagt actgaggcag ccacttgatt gaacggtgtt gcaatgtgga  1050
```

                                222

```
       gacatggagt tttattgagg tagctacgtg attaaatggt attgcagtgt 1100

       gga 1103

<210> 250
<211> 240
<212> PRT
<213> Homo sapiens

<400> 250
 Met Ala Leu Ala Ala Leu Met Ile Ala Leu Gly Ser Leu Gly Leu
  1               5                  10                  15

 His Thr Trp Gln Ala Gln Ala Val Pro Thr Ile Leu Pro Leu Gly
                 20                  25                  30

 Leu Ala Pro Asp Thr Phe Asp Asp Thr Tyr Val Gly Cys Ala Glu
                 35                  40                  45

 Glu Met Glu Glu Lys Ala Ala Pro Leu Leu Lys Glu Glu Met Ala
                 50                  55                  60

 His His Ala Leu Leu Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr
                 65                  70                  75

 Trp Glu Asp Lys Arg Arg Gly Leu Thr Leu Pro Pro Gly Phe Lys
                 80                  85                  90

 Ala Gln Asn Gly Ile Ala Ile Met Val Tyr Thr Asn Ser Ser Asn
                 95                 100                 105

 Thr Leu Tyr Trp Glu Leu Asn Gln Ala Val Arg Thr Gly Gly Gly
                110                 115                 120

 Ser Arg Glu Leu Tyr Met Arg His Phe Pro Phe Lys Ala Leu His
                125                 130                 135

 Phe Tyr Leu Ile Arg Ala Leu Gln Leu Leu Arg Gly Ser Gly Gly
                140                 145                 150

 Cys Ser Arg Gly Pro Gly Glu Val Val Phe Arg Gly Val Gly Ser
                155                 160                 165

 Leu Arg Phe Glu Pro Lys Arg Leu Gly Asp Ser Val Arg Leu Gly
                170                 175                 180

 Gln Phe Ala Ser Ser Ser Leu Asp Lys Ala Val Ala His Arg Phe
                185                 190                 195

 Gly Glu Lys Arg Arg Gly Cys Val Ser Ala Pro Gly Val Gln Leu
                200                 205                 210

 Gly Ser Gln Ser Glu Gly Ala Ser Ser Leu Pro Pro Trp Lys Thr
                215                 220                 225

 Leu Leu Leu Ala Pro Gly Glu Phe Gln Leu Ser Gly Val Gly Pro
                230                 235                 240

<210> 251
<211> 50
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic oligonucleotide probe

<400> 251
 ccaccacctg gaggtcctgc agttgggcag gaactccatc cggcagattg 50

<210> 252
<211> 1076
<212> DNA
<213> Homo sapiens

<400> 252
 gtggcttcat ttcagtggct gacttccaga gagcaatatg gctggttccc 50

 caacatgcct caccctcatc tatatccttt ggcagctcac agggtcagca 100

 gcctctggac ccgtgaaaga gctggtcggt tccgttggtg gggccgtgac 150

 tttccccctg aagtccaaag taaagcaagt tgactctatt gtctggacct 200

 tcaacacaac ccctcttgtc accatacagc cagaaggggg cactatcata 250

 gtgacccaaa atcgtaatag ggagagagta gacttcccag atggaggcta 300

 ctccctgaag ctcagcaaac tgaagaagaa tgactcaggg atctactatg 350

 tggggatata cagctcatca ctccagcagc cctccaccca ggagtacgtg 400

 ctgcatgtct acgagcacct gtcaaagcct aaagtcacca tgggtctgca 450

 gagcaataag aatggcacct gtgtgaccaa tctgacatgc tgcatggaac 500

 atgggggaaga ggatgtgatt tatacctgga aggccctggg gcaagcagcc 550

 aatgagtccc ataatgggtc catcctcccc atctcctgga gatggggaga 600

 aagtgatatg accttcatct gcgttgccag gaaccctgtc agcagaaact 650

 tctcaagccc catccttgcc aggaagctct gtgaaggtgc tgctgatgac 700

 ccagattcct ccatggtcct cctgtgtctc ctgttggtgc ccctcctgct 750

 cagtctcttt gtactggggc tatttctttg gtttctgaag agagagagac 800

 aagaagagta cattgaagag aagaagagag tggacatttg tcgggaaact 850

 cctaacatat gcccccattc tggagagaac acagagtacg acacaatccc 900

 tcacactaat agaacaatcc taaaggaaga tccagcaaat acggtttact 950

 ccactgtgga aataccgaaa aagatggaaa atccccactc actgctcacg 1000

 atgccagaca caccaaggct atttgcctat gagaatgtta tctagacagc 1050

 agtgcactcc cctaagtctc tgctca 1076

<210> 253
<211> 335
<212> PRT
<213> Homo sapiens

<400> 253
 Met Ala Gly Ser Pro Thr Cys Leu Thr Leu Ile Tyr Ile Leu Trp

224

```
 1                  5                      10                          15

Gln Leu Thr Gly Ser Ala Ala Ser Gly Pro Val Lys Glu Leu Val
                20                      25                          30

Gly Ser Val Gly Gly Ala Val Thr Phe Pro Leu Lys Ser Lys Val
                35                      40                          45

Lys Gln Val Asp Ser Ile Val Trp Thr Phe Asn Thr Thr Pro Leu
                50                      55                          60

Val Thr Ile Gln Pro Glu Gly Gly Thr Ile Ile Val Thr Gln Asn
                65                      70                          75

Arg Asn Arg Glu Arg Val Asp Phe Pro Asp Gly Gly Tyr Ser Leu
                80                      85                          90

Lys Leu Ser Lys Leu Lys Lys Asn Asp Ser Gly Ile Tyr Tyr Val
                95                     100                         105

Gly Ile Tyr Ser Ser Ser Leu Gln Gln Pro Ser Thr Gln Glu Tyr
               110                     115                         120

Val Leu His Val Tyr Glu His Leu Ser Lys Pro Lys Val Thr Met
               125                     130                         135

Gly Leu Gln Ser Asn Lys Asn Gly Thr Cys Val Thr Asn Leu Thr
               140                     145                         150

Cys Cys Met Glu His Gly Glu Glu Asp Val Ile Tyr Thr Trp Lys
               155                     160                         165

Ala Leu Gly Gln Ala Ala Asn Glu Ser His Asn Gly Ser Ile Leu
               170                     175                         180

Pro Ile Ser Trp Arg Trp Gly Glu Ser Asp Met Thr Phe Ile Cys
               185                     190                         195

Val Ala Arg Asn Pro Val Ser Arg Asn Phe Ser Ser Pro Ile Leu
               200                     205                         210

Ala Arg Lys Leu Cys Glu Gly Ala Ala Asp Asp Pro Asp Ser Ser
               215                     220                         225

Met Val Leu Leu Cys Leu Leu Leu Val Pro Leu Leu Leu Ser Leu
               230                     235                         240

Phe Val Leu Gly Leu Phe Leu Trp Phe Leu Lys Arg Glu Arg Gln
               245                     250                         255

Glu Glu Tyr Ile Glu Glu Lys Lys Arg Val Asp Ile Cys Arg Glu
               260                     265                         270

Thr Pro Asn Ile Cys Pro His Ser Gly Glu Asn Thr Glu Tyr Asp
               275                     280                         285

Thr Ile Pro His Thr Asn Arg Thr Ile Leu Lys Glu Asp Pro Ala
               290                     295                         300

Asn Thr Val Tyr Ser Thr Val Glu Ile Pro Lys Lys Met Glu Asn
               305                     310                         315

Pro His Ser Leu Leu Thr Met Pro Asp Thr Pro Arg Leu Phe Ala
```

Tyr Glu Asn Val Ile
                335

```
<210> 254
<211> 1053
<212> DNA
<213> Homo sapiens

<400> 254
 ctggttcccc aacatgcctc accctcatct atatcctttg gcagctcaca 50

 gggtcagcag cctctggacc cgtgaaagag ctggtcggtt ccgttggtgg 100

 ggccgtgact ttccccctga agtccaaagt aaagcaagtt gactctattg 150

 tctggacctt caacacaacc cctcttgtca ccatacagcc agaaggggc 200

 actatcatag tgacccaaaa tcgtaatagg gagagagtag acttcccaga 250

 tggaggctac tccctgaagc tcagcaaact gaagaagaat gactcaggga 300

 tctactatgt ggggatatac agctcatcac tccagcagcc ctccacccag 350

 gagtacgtgc tgcatgtcta cgagcacctg tcaaagccta aagtcaccat 400

 gggtctgcag agcaataaga atggcacctg tgtgaccaat ctgacatgct 450

 gcatggaaca tggggaagag gatgtgattt atacctggaa ggccctgggg 500

 caagcagcca atgagtccca taatgggtcc atcctcccca tctcctggag 550

 atggggagaa agtgatatga ccttcatctg cgttgccagg aaccctgtca 600

 gcagaaactt ctcaagcccc atccttgcca ggaagctctg tgaaggtgct 650

 gctgatgacc cagattcctc catggtcctc ctgtgtctcc tgttggtgcc 700

 cctcctgctc agtctctttg tactggggct atttctttgg tttctgaaga 750

 gagagagaca agaagagtac attgaagaga agaagagagt ggacatttgt 800

 cgggaaactc ctaacatatg cccccattct ggagagaaca cagagtacga 850

 cacaatccct cacactaata gaacaatcct aaaggaagat ccagcaaata 900

 cggtttactc cactgtggaa ataccgaaaa agatggaaaa tccccactca 950

 ctgctcacga tgccagacac accaaggcta tttgcctatg agaatgttat 1000

 ctagacagca gtgcactccc ctaagtctct gctcaaaaaa aaaaaaaaa 1050

 aaa 1053

<210> 255
<211> 860
<212> DNA
<213> Homo sapiens

<400> 255
 gaaagacgtg gtcctgacag acagacaatc ctattcccta ccaaaatgaa 50
```

```
gatgctgctg ctgctgtgtt tgggactgac cctagtctgt gtccatgcag 100

aagaagctag ttctacggga aggaacttta atgtagaaaa gattaatggg 150

gaatggcata ctattatcct ggcctctgac aaaagagaaa agatagaaga 200

acatggcaac tttagacttt ttctggagca aatccatgtc ttggagaatt 250

ccttagttct taaagtccat actgtaagag atgaagagtg ctccgaatta 300

tctatggttg ctgacaaaac agaaaaggct ggtgaatatt ctgtgacgta 350

tgatggattc aatacatttta ctatacctaa gacagactat gataactttc 400

ttatggctca cctcattaac gaaaaggatg gggaaacctt ccagctgatg 450

gggctctatg gccgagaacc agatttgagt tcagacatca aggaaaggtt 500

tgcacaacta tgtgaggagc atggaatcct tagagaaaat atcattgacc 550

tatccaatgc caatcgctgc ctccaggccc gagaatgaag aatggcctga 600

gcctccagtg ttgagtggac acttctcacc aggactccac catcatccct 650

tcctatccat acagcatccc cagtataaat tctgtgatct gcattccatc 700

ctgtctcact gagaagtcca attccagtct atcaacatgt tacctaggat 750

acctcatcaa gaatcaaaga cttctttaaa tttctctttg atacacccctt 800

gacaattttt catgaaatta ttcctcttcc tgttcaataa atgattaccc 850

ttgcacttaa 860
```

```
<210> 256
<211> 180
<212> PRT
<213> Homo sapiens

<400> 256
Met Lys Met Leu Leu Leu Leu Cys Leu Gly Leu Thr Leu Val Cys
  1               5                  10                  15

Val His Ala Glu Glu Ala Ser Ser Thr Gly Arg Asn Phe Asn Val
               20                  25                  30

Glu Lys Ile Asn Gly Glu Trp His Thr Ile Ile Leu Ala Ser Asp
               35                  40                  45

Lys Arg Glu Lys Ile Glu Glu His Gly Asn Phe Arg Leu Phe Leu
               50                  55                  60

Glu Gln Ile His Val Leu Glu Asn Ser Leu Val Leu Lys Val His
               65                  70                  75

Thr Val Arg Asp Glu Glu Cys Ser Glu Leu Ser Met Val Ala Asp
               80                  85                  90

Lys Thr Glu Lys Ala Gly Glu Tyr Ser Val Thr Tyr Asp Gly Phe
               95                 100                 105

Asn Thr Phe Thr Ile Pro Lys Thr Asp Tyr Asp Asn Phe Leu Met
              110                 115                 120
```

227

```
Ala His Leu Ile Asn Glu Lys Asp Gly Glu Thr Phe Gln Leu Met
                125                 130                 135

Gly Leu Tyr Gly Arg Glu Pro Asp Leu Ser Ser Asp Ile Lys Glu
                140                 145                 150

Arg Phe Ala Gln Leu Cys Glu Glu His Gly Ile Leu Arg Glu Asn
                155                 160                 165

Ile Ile Asp Leu Ser Asn Ala Asn Arg Cys Leu Gln Ala Arg Glu
                170                 175                 180
```

<210> 257
<211> 766
<212> DNA
<213> Homo sapiens

<400> 257

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ggctcgagcg tttctgagcc aggggtgacc atgacctgct gcgaaggatg 50

gacatcctgc aatggattca gcctgctggt tctactgctg ttaggagtag 100

ttctcaatgc gatacctcta attgtcagct tagttgagga agaccaattt 150

tctcaaaacc ccatctcttg ctttgagtgg tggttcccag gaattatagg 200

agcaggtctg atggccattc cagcaacaac aatgtccttg acagcaagaa 250

aaagagcgtg ctgcaacaac agaactggaa tgtttctttc atcatttttc 300

agtgtgatca cagtcattgg tgctctgtat tgcatgctga tatccatcca 350

ggctctctta aaaggtcctc tcatgtgtaa ttctccaagc aacagtaatg 400

ccaattgtga attttcattg aaaaacatca gtgacattca tccagaatcc 450

ttcaacttgc agtggttttt caatgactct tgtgcacctc ctactggttt 500

caataaaccc accagtaacg acaccatggc gagtggctgg agagcatcta 550

gtttccactt cgattctgaa gaaaacaaac ataggcttat ccacttctca 600

gtattttttag gtctattgct tgttggaatt ctggaggtcc tgtttgggct 650

cagtcagata gtcatcggtt tccttggctg tctgtgtgga gtctctaagc 700

gaagaagtca aattgtgtag tttaatggga ataaaatgta agtatcagta 750

gtttgaaaaa aaaaaa 766
```

<210> 258
<211> 229
<212> PRT
<213> Homo sapiens

<400> 258

```
Met Thr Cys Cys Glu Gly Trp Thr Ser Cys Asn Gly Phe Ser Leu
1               5                   10                  15

Leu Val Leu Leu Leu Leu Gly Val Val Leu Asn Ala Ile Pro Leu
                20                  25                  30

Ile Val Ser Leu Val Glu Glu Asp Gln Phe Ser Gln Asn Pro Ile
```

228

Ser Cys Phe Glu Trp Trp Phe Pro Gly Ile Ile Gly Ala Gly Leu
                    50   55   60

Met Ala Ile Pro Ala Thr Thr Met Ser Leu Thr Ala Arg Lys Arg
                    65   70   75

Ala Cys Cys Asn Asn Arg Thr Gly Met Phe Leu Ser Ser Phe Phe
                    80   85   90

Ser Val Ile Thr Val Ile Gly Ala Leu Tyr Cys Met Leu Ile Ser
                    95   100   105

Ile Gln Ala Leu Leu Lys Gly Pro Leu Met Cys Asn Ser Pro Ser
                   110   115   120

Asn Ser Asn Ala Asn Cys Glu Phe Ser Leu Lys Asn Ile Ser Asp
                   125   130   135

Ile His Pro Glu Ser Phe Asn Leu Gln Trp Phe Phe Asn Asp Ser
                   140   145   150

Cys Ala Pro Pro Thr Gly Phe Asn Lys Pro Thr Ser Asn Asp Thr
                   155   160   165

Met Ala Ser Gly Trp Arg Ala Ser Ser Phe His Phe Asp Ser Glu
                   170   175   180

Glu Asn Lys His Arg Leu Ile His Phe Ser Val Phe Leu Gly Leu
                   185   190   195

Leu Leu Val Gly Ile Leu Glu Val Leu Phe Gly Leu Ser Gln Ile
                   200   205   210

Val Ile Gly Phe Leu Gly Cys Leu Cys Gly Val Ser Lys Arg Arg
                   215   220   225

Ser Gln Ile Val

<210> 259
<211> 434
<212> DNA
<213> Homo sapiens

<400> 259
 gtcgaatcca aatcactcat tgtgaaagct gagctcacag ccgaataagc 50

 caccatgagg ctgtcagtgt gtctcctgat ggtctcgctg gccctttgct 100

 gctaccaggc ccatgctctt gtctgcccag ctgttgcttc tgagatcaca 150

 gtcttcttat tcttaagtga cgctgcggta aacctccaag ttgccaaact 200

 taatccacct ccagaagctc ttgcagccaa gttggaagtg aagcactgca 250

 ccgatcagat atcttttaag aaacgactct cattgaaaaa gtcctggtgg 300

 aaatagtgaa aaaatgtggt gtgtgacatg taaaaatgct caacctggtt 350

 tccaaagtct ttcaacgaca ccctgatctt cactaaaaat tgtaaaggtt 400

```
tcaacacgtt gctttaataa atcacttgcc ctgc 434
```

<210> 260
<211> 83
<212> PRT
<213> Homo sapiens

<400> 260

```
 Met Arg Leu Ser Val Cys Leu Leu Met Val Ser Leu Ala Leu Cys
   1               5                  10                  15

 Cys Tyr Gln Ala His Ala Leu Val Cys Pro Ala Val Ala Ser Glu
                  20                  25                  30

 Ile Thr Val Phe Leu Phe Leu Ser Asp Ala Ala Val Asn Leu Gln
                  35                  40                  45

 Val Ala Lys Leu Asn Pro Pro Pro Glu Ala Leu Ala Ala Lys Leu
                  50                  55                  60

 Glu Val Lys His Cys Thr Asp Gln Ile Ser Phe Lys Lys Arg Leu
                  65                  70                  75

 Ser Leu Lys Lys Ser Trp Trp Lys
                  80
```

<210> 261
<211> 636
<212> DNA
<213> Homo sapiens

<400> 261

```
 atccgttctc tgcgctgcca gctcaggtga gccctcgcca aggtgacctc 50

 gcaggacact ggtgaaggag cagtgaggaa cctgcagagt cacacagttg 100

 ctgaccaatt gagctgtgag cctggagcag atccgtgggc tgcagacccc 150

 cgccccagtg cctctcccc tgcagccctg ccctcgaac tgtgacatgg 200

 agagagtgac cctggcctt ctcctactgg caggcctgac tgccttggaa 250

 gccaatgacc catttgccaa taaagacgat cccttctact atgactggaa 300

 aaacctgcag ctgagcggac tgatctgcgg agggctcctg gccattgctg 350

 ggatcgcggc agttctgagt ggcaaatgca aatacaagag cagccagaag 400

 cagcacagtc ctgtacctga gaaggccatc ccactcatca ctccaggctc 450

 tgccactact tgctgagcac aggactggcc tccagggatg gcctgaagcc 500

 taacactggc ccccagcacc tcctcccctg ggaggcctta tcctcaagga 550

 aggacttctc tccaagggca ggctgttagg ccccttttctg atcaggaggc 600

 ttctttatga attaaactcg ccccaccacc ccctca 636
```

<210> 262
<211> 89
<212> PRT
<213> Homo sapiens

<400> 262

```
Met Glu Arg Val Thr Leu Ala Leu Leu Leu Leu Ala Gly Leu Thr
1               5                   10                  15

Ala Leu Glu Ala Asn Asp Pro Phe Ala Asn Lys Asp Asp Pro Phe
                20                  25                  30

Tyr Tyr Asp Trp Lys Asn Leu Gln Leu Ser Gly Leu Ile Cys Gly
                35                  40                  45

Gly Leu Leu Ala Ile Ala Gly Ile Ala Ala Val Leu Ser Gly Lys
                50                  55                  60

Cys Lys Tyr Lys Ser Ser Gln Lys Gln His Ser Pro Val Pro Glu
                65                  70                  75

Lys Ala Ile Pro Leu Ile Thr Pro Gly Ser Ala Thr Thr Cys
                80                  85
```

<210> 263
<211> 1676
<212> DNA
<213> Homo sapiens

<400> 263

```
ggagaagagg ttgtgtggga caagctgctc ccgacagaag gatgtcgctg 50

ctgagcctgc cctggctggg cctcagaccg gtggcaatgt ccccatggct 100

actcctgctg ctggttgtgg gctcctggct actcgcccgc atcctggctt 150

ggacctatgc cttctataac aactgccgcc ggctccagtg tttcccacag 200

cccccaaaac ggaactggtt ttggggtcac ctgggcctga tcactcctac 250

agaggagggc ttgaaggact cgacccagat gtcggccacc tattcccagg 300

gctttacggt atggctgggt cccatcatcc ccttcatcgt tttatgccac 350

cctgacacca tccggtctat caccaatgcc tcagctgcca ttgcacccaa 400

ggataatctc ttcatcaggt tcctgaagcc ctggctggga gaagggatac 450

tgctgagtgg cggtgacaag tggagccgcc accgtcggat gctgacgccc 500

gccttccatt tcaacatcct gaagtcctat ataacgatct tcaacaagag 550

tgcaaacatc atgcttgaca agtggcagca cctggcctca gaggggcagca 600

gtcgtctgga catgtttgag cacatcagcc tcatgacctt ggacagtcta 650

cagaaatgca tcttcagctt tgacagccat tgtcaggaga ggcccagtga 700

atatattgcc accatcttgg agctcagtgc ccttgtagag aaaagaagcc 750

agcatatcct ccagcacatg gactttctgt attacctctc ccatgacggg 800

cggcgcttcc acagggcctg ccgcctggtg catgacttca cagacgctgt 850

catccgggag cggcgtcgca ccctccccac tcagggtatt gatgattttt 900

tcaaagacaa agccaagtcc aagactttgg atttcattga tgtgcttctg 950
```

231

```
ctgagcaagg atgaagatgg gaaggcattg tcagatgagg atataagagc 1000

agaggctgac accttcatgt ttggaggcca tgacaccacg gccagtggcc 1050

tctcctgggt cctgtacaac cttgcgaggc acccagaata ccaggagcgc 1100

tgccgacagg aggtgcaaga gcttctgaag gaccgcgatc ctaaagagat 1150

tgaatgggac gacctggccc agctgccctt cctgaccatg tgcgtgaagg 1200

agagcctgag gttacatccc ccagctccct tcatctcccg atgctgcacc 1250

caggacattg ttctcccaga tggccgagtc atccccaaag gcattacctg 1300

cctcatcgat attatagggg tccatcacaa cccaactgtg tggccggatc 1350

ctgaggtcta cgacccttc cgctttgacc cagagaacag caaggggagg 1400

tcacctctgg cttttattcc tttctccgca gggcccagga actgcatcgg 1450

gcaggcgttc gccatggcgg agatgaaagt ggtcctggcg ttgatgctgc 1500

tgcacttccg gttcctgcca gaccacactg agccccgcag gaagctggaa 1550

ttgatcatgc gcgccgaggg cgggctttgg ctgcgggtgg agcccctgaa 1600

tgtaggcttg cagtgacttt ctgacccatc cacctgtttt tttgcagatt 1650

gtcatgaata aaacggtgct gtcaaa 1676
```

<210> 264
<211> 524
<212> PRT
<213> Homo sapiens

<400> 264

```
Met Ser Leu Leu Ser Leu Pro Trp Leu Gly Leu Arg Pro Val Ala
 1               5                   10                  15

Met Ser Pro Trp Leu Leu Leu Leu Val Val Gly Ser Trp Leu
                20                  25                  30

Leu Ala Arg Ile Leu Ala Trp Thr Tyr Ala Phe Tyr Asn Asn Cys
                35                  40                  45

Arg Arg Leu Gln Cys Phe Pro Gln Pro Pro Lys Arg Asn Trp Phe
                50                  55                  60

Trp Gly His Leu Gly Leu Ile Thr Pro Thr Glu Glu Gly Leu Lys
                65                  70                  75

Asp Ser Thr Gln Met Ser Ala Thr Tyr Ser Gln Gly Phe Thr Val
                80                  85                  90

Trp Leu Gly Pro Ile Ile Pro Phe Ile Val Leu Cys His Pro Asp
                95                  100                 105

Thr Ile Arg Ser Ile Thr Asn Ala Ser Ala Ala Ile Ala Pro Lys
                110                 115                 120

Asp Asn Leu Phe Ile Arg Phe Leu Lys Pro Trp Leu Gly Glu Gly
                125                 130                 135
```

232

```
Ile Leu Leu Ser Gly Gly Asp Lys Trp Ser Arg His Arg Arg Met
                140                 145                 150

Leu Thr Pro Ala Phe His Phe Asn Ile Leu Lys Ser Tyr Ile Thr
                155                 160                 165

Ile Phe Asn Lys Ser Ala Asn Ile Met Leu Asp Lys Trp Gln His
                170                 175                 180

Leu Ala Ser Glu Gly Ser Ser Arg Leu Asp Met Phe Glu His Ile
                185                 190                 195

Ser Leu Met Thr Leu Asp Ser Leu Gln Lys Cys Ile Phe Ser Phe
                200                 205                 210

Asp Ser His Cys Gln Glu Arg Pro Ser Glu Tyr Ile Ala Thr Ile
                215                 220                 225

Leu Glu Leu Ser Ala Leu Val Glu Lys Arg Ser Gln His Ile Leu
                230                 235                 240

Gln His Met Asp Phe Leu Tyr Tyr Leu Ser His Asp Gly Arg Arg
                245                 250                 255

Phe His Arg Ala Cys Arg Leu Val His Asp Phe Thr Asp Ala Val
                260                 265                 270

Ile Arg Glu Arg Arg Arg Thr Leu Pro Thr Gln Gly Ile Asp Asp
                275                 280                 285

Phe Phe Lys Asp Lys Ala Lys Ser Lys Thr Leu Asp Phe Ile Asp
                290                 295                 300

Val Leu Leu Leu Ser Lys Asp Glu Asp Gly Lys Ala Leu Ser Asp
                305                 310                 315

Glu Asp Ile Arg Ala Glu Ala Asp Thr Phe Met Phe Gly Gly His
                320                 325                 330

Asp Thr Thr Ala Ser Gly Leu Ser Trp Val Leu Tyr Asn Leu Ala
                335                 340                 345

Arg His Pro Glu Tyr Gln Glu Arg Cys Arg Gln Glu Val Gln Glu
                350                 355                 360

Leu Leu Lys Asp Arg Asp Pro Lys Glu Ile Glu Trp Asp Asp Leu
                365                 370                 375

Ala Gln Leu Pro Phe Leu Thr Met Cys Val Lys Glu Ser Leu Arg
                380                 385                 390

Leu His Pro Pro Ala Pro Phe Ile Ser Arg Cys Cys Thr Gln Asp
                395                 400                 405

Ile Val Leu Pro Asp Gly Arg Val Ile Pro Lys Gly Ile Thr Cys
                410                 415                 420

Leu Ile Asp Ile Ile Gly Val His His Asn Pro Thr Val Trp Pro
                425                 430                 435

Asp Pro Glu Val Tyr Asp Pro Phe Arg Phe Asp Pro Glu Asn Ser
                440                 445                 450
```

233

```
Lys Gly Arg Ser Pro Leu Ala Phe Ile Pro Phe Ser Ala Gly Pro
                455             460                 465

Arg Asn Cys Ile Gly Gln Ala Phe Ala Met Ala Glu Met Lys Val
                470             475                 480

Val Leu Ala Leu Met Leu Leu His Phe Arg Phe Leu Pro Asp His
                485             490                 495

Thr Glu Pro Arg Arg Lys Leu Glu Leu Ile Met Arg Ala Glu Gly
                500             505                 510

Gly Leu Trp Leu Arg Val Glu Pro Leu Asn Val Gly Leu Gln
                515             520
```

<210> 265
<211> 584
<212> DNA
<213> Homo sapiens

<400> 265

```
caacagaagc caagaaggaa gccgtctatc ttgtggcgat catgtataag 50

ctggcctcct gctgtttgct tttcacagga ttcttaaatc ctctcttatc 100

tcttcctctc cttgactcca gggaaatatc ctttcaactc tcagcacctc 150

atgaagacgc gcgcttaact ccggaggagc tagaaagagc ttcccttcta 200

cagatattgc cagagatgct gggtgcagaa agaggggata ttctcaggaa 250

agcagactca agtaccaaca tttttaaccc aagaggaaat ttgagaaagt 300

ttcaggattt ctctggacaa gatcctaaca ttttactgag tcatcttttg 350

gccagaatct ggaaaccata caagaaacgt gagactcctg attgcttctg 400

gaaatactgt gtctgaagtg aaataagcat ctgttagtca gctcagaaac 450

acccatctta gaatatgaaa aataacacaa tgcttgattt gaaaacagtg 500

tggagaaaaa ctaggcaaac tacaccctgt tcattgttac ctggaaaata 550

aatcctctat gttttgcaca aaaaaaaaaa aaaa 584
```

<210> 266
<211> 124
<212> PRT
<213> Homo sapiens

<400> 266

```
Met Tyr Lys Leu Ala Ser Cys Cys Leu Leu Phe Thr Gly Phe Leu
 1               5                  10                  15

Asn Pro Leu Leu Ser Leu Pro Leu Leu Asp Ser Arg Glu Ile Ser
                20              25                  30

Phe Gln Leu Ser Ala Pro His Glu Asp Ala Arg Leu Thr Pro Glu
                35              40                  45

Glu Leu Glu Arg Ala Ser Leu Leu Gln Ile Leu Pro Glu Met Leu
                50              55                  60
```

```
Gly Ala Glu Arg Gly Asp Ile Leu Arg Lys Ala Asp Ser Ser Thr
                65                  70                  75

Asn Ile Phe Asn Pro Arg Gly Asn Leu Arg Lys Phe Gln Asp Phe
                80                  85                  90

Ser Gly Gln Asp Pro Asn Ile Leu Leu Ser His Leu Leu Ala Arg
                95                 100                 105

Ile Trp Lys Pro Tyr Lys Lys Arg Glu Thr Pro Asp Cys Phe Trp
               110                 115                 120

Lys Tyr Cys Val
```

```
<210> 267
<211> 654
<212> DNA
<213> Homo sapiens

<400> 267
 gaacattttt agttcccaag gaatgtacat cagccccacg gaagctaggc 50

 cacctctggg atggggttgc tggtttaaaa caaacgccag tcatcctata 100

 taaggacctg acagccacca ggcaccacct ccgccaggaa ctgcaggccc 150

 acctgtctgc aacccagctg aggccatgcc ctccccaggg accgtctgca 200

 gcctcctgct cctcggcatg ctctggctgg acttggccat ggcaggctcc 250

 agcttcctga gccctgaaca ccagagagtc cagcagagaa aggagtcgaa 300

 gaagccacca gccaagctgc agccccgagc tctagcaggc tggctccgcc 350

 cggaagatgg aggtcaagca gaaggggcag aggatgaact ggaagtccgg 400

 ttcaacgccc cctttgatgt tggaatcaag ctgtcagggg ttcagtacca 450

 gcagcacagc caggccctgg ggaagtttct tcaggacatc ctctgggaag 500

 aggccaaaga ggccccagcc gacaagtgat cgcccacaag ccttactcac 550

 ctctctctaa gtttagaagc gctcatctgg cttttcgctt gcttctgcag 600

 caactcccac gactgttgta caagctcagg aggcgaataa atgttcaaac 650

 tgta 654
```

```
<210> 268
<211> 117
<212> PRT
<213> Homo sapiens

<400> 268
 Met Pro Ser Pro Gly Thr Val Cys Ser Leu Leu Leu Leu Gly Met
  1               5                  10                  15

 Leu Trp Leu Asp Leu Ala Met Ala Gly Ser Ser Phe Leu Ser Pro
                20                  25                  30

 Glu His Gln Arg Val Gln Gln Arg Lys Glu Ser Lys Lys Pro Pro
                35                  40                  45
```

```
Ala Lys Leu Gln Pro Arg Ala Leu Ala Gly Trp Leu Arg Pro Glu
            50                  55                  60

Asp Gly Gly Gln Ala Glu Gly Ala Glu Asp Glu Leu Glu Val Arg
            65                  70                  75

Phe Asn Ala Pro Phe Asp Val Gly Ile Lys Leu Ser Gly Val Gln
            80                  85                  90

Tyr Gln Gln His Ser Gln Ala Leu Gly Lys Phe Leu Gln Asp Ile
            95                  100                 105

Leu Trp Glu Glu Ala Lys Glu Ala Pro Ala Asp Lys
            110                 115
```

<210> 269
<211> 1332
<212> DNA
<213> Homo sapiens

<400> 269

```
cggccacagc tggcatgctc tgcctgatcg ccatcctgct gtatgtcctc  50

gtccagtacc tcgtgaaccc cggggtgctc cgcacggacc ccagatgtca  100

agaatatgaa cacgtggctg ctgttcctcc ccctgttccc ggtgcaggtg  150

cagaccctga tagtcgtgat catcgggatg ctcgtgctcc tgctggactt  200

tcttggcttg gtgcacctgg gccagctgct catcttccac atctacctga  250

gtatgtcccc caccctaagc ccccgatccc cccaaggctg ggtggtcaga  300

gctgctcatc ttacacctct acttgagtat gtccctaacc ctgagcccc  350

cacgcctggg gccagagtct ttgtcccccg tgtgcgcatg tgttcagggt  400

cagcctctcc cagaagtgag atcatggaca aaaagggcaa atcacaggaa  450

gaaattaaat ccatgaggac ccagcaggcc cagcaagaag ctgaactcac  500

gccgagacct gcaggagtgg tgccaggtgc ttgaagtaac aagtttaaaa  550

tgttcagaga caatggaatg gaatctatta ggcaagaaca ggacattatg  600

aaataaggac aggtggactt ccaaaaacac aagtagaaat tctaacaatg  650

aaatatatta caggcaggtc acccactaac caaacaactg aagcgagagc  700

tgtggtcttg cttggtctca cagtgggcac agcggtaggc ggtcagtcat  750

gttgctgaac gacggagggt aaactcccca gccccaagaa aacctgtgtt  800

ggaagtaaca acaacctccc tgctcctggc accagccgtt ttggtcatgg  850

tgggccagct gcaaagcgtc ttccattctc tgggcagtgg tggccccgag  900

gctgtggcct ctcagggggt ttctgtggac acgggcagca gagtgtgtcc  950

aggccagccc ccaagaatgc cctgctcctg acagcttggc caaccctgg  1000

tcagggcaga gggagttggg tgggtcaggc tctgggctca cctccatctc  1050
```

236

```
        cagagcatcc cctgcctgca gttgtggcaa gaacgcccag ctcagaatga 1100

        acacacccca ccaagagcct ccttgttcat aaccacaggt taccctacaa 1150

        accactgtcc ccacacaacc ctggggatgt tttaaaacac acacctctaa 1200

        cgcatatctt acagtcactg ttgtcttgcc tgagggttga atttttttta 1250

        atgaaagtgc aatgaaaatc actggattaa atcctacgga cacagagctg 1300

        aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1332
```

<210> 270
<211> 142
<212> PRT
<213> Homo sapiens

<400> 270
```
  Met Asn Thr Trp Leu Leu Phe Leu Pro Leu Phe Pro Val Gln Val
  1               5                   10                  15

  Gln Thr Leu Ile Val Val Ile Ile Gly Met Leu Val Leu Leu Leu
                  20                  25                  30

  Asp Phe Leu Gly Leu Val His Leu Gly Gln Leu Leu Ile Phe His
                  35                  40                  45

  Ile Tyr Leu Ser Met Ser Pro Thr Leu Ser Pro Arg Ser Pro Gln
                  50                  55                  60

  Gly Trp Val Val Arg Ala Ala His Leu Thr Pro Leu Leu Glu Tyr
                  65                  70                  75

  Val Pro Asn Pro Glu Pro Pro Thr Pro Gly Ala Arg Val Phe Val
                  80                  85                  90

  Pro Arg Val Arg Met Cys Ser Gly Ser Ala Ser Pro Arg Ser Glu
                  95                  100                 105

  Ile Met Asp Lys Lys Gly Lys Ser Gln Glu Glu Ile Lys Ser Met
                  110                 115                 120

  Arg Thr Gln Gln Ala Gln Gln Glu Ala Glu Leu Thr Pro Arg Pro
                  125                 130                 135

  Ala Gly Val Val Pro Gly Ala
                  140
```

<210> 271
<211> 1484
<212> DNA
<213> Homo sapiens

<400> 271
```
  ggagtgcaga tggcatcctt cggttcttcc agacaagctg caagacgctg 50

  accatggcca agatggagct ctcgaaggcc ttctctggcc agcggacact 100

  cctatctgcc atcctcagca tgctatcact cagcttctcc acaacatccc 150

  tgctcagcaa ctactggttt gtgggcacac agaaggtgcc caagcccctg 200

  tgcgagaaag gtctggcagc caagtgcttt gacatgccag tgtccctgga 250
```

```
tggagatacc aacacatcca cccaggaggt ggtacaatac aactgggaga 300

ctggggatga ccggttctcc ttccggagct tccggagtgg catgtggcta 350

tcctgtgagg aaactgtgga agaaccaggg gagaggtgcc gaagtttcat 400

tgaacttaca ccaccagcca agagaggtga gaaaggacta ctggaatttg 450

ccacgttgca aggcccatgt caccccactc tccgatttgg agggaagcgg 500

ttgatggaga aggcttccct cccctcccct cccttggggc tttgtggcaa 550

aaatcctatg gttatccctg ggaacgcaga tcacctacat cggacttcaa 600

ttcatcagct tcctcctgct actaacagac ttgctactca ctgggaaccc 650

tgcctgtggg ctcaaactga gcgcctttgc tgctgtttcc tctgtcctgt 700

caggtctcct ggggatggtg gcccacatga tgtattcaca agtcttccaa 750

gcgactgtca acttgggtcc agaagactgg agaccacatg tttggaatta 800

tggctgggcc ttctacatgg cctggctctc cttcacctgc tgcatggcgt 850

cggctgtcac caccttcaac acgtacacca ggatggtgct ggagttcaag 900

tgcaagcata gtaagagctt caaggaaaac ccgaactgcc taccacatca 950

ccatcagtgt ttccctcggc ggctgtcaag tgcagccccc accgtgggtc 1000

ctttgaccag ctaccaccag tatcataatc agcccatcca ctctgtctct 1050

gagggagtcg acttctactc cgagctgcgg aacaagggat ttcaaagagg 1100

ggccagccag gagctgaaag aagcagttag gtcatctgta gaggaagagc 1150

agtgttagga gttaagcggg tttgggggagt aggcttgagc cctaccttac 1200

acgtctgctg attatcaaca tgtgcttaag ccaacatccg tctcttgagc 1250

atggttttta gaggctacga ataaggctat gaataagggt tatctttaag 1300

tcctaaggga ttcctgggtg ccactgctct cttttcctct acagctccat 1350

cttgtttcac ccaccccaca tctcacacat ccagaattcc cttctttact 1400

gatagtttct gtgccaggtt ctgggctaaa ccatggagat aaaaagaaga 1450

gtaaaataca cttcccgacc ttaaggatct gaaa 1484
```

<210> 272
<211> 285
<212> PRT
<213> Homo sapiens

<400> 272

```
Met Ala Lys Met Glu Leu Ser Lys Ala Phe Ser Gly Gln Arg Thr
1               5                  10                  15

Leu Leu Ser Ala Ile Leu Ser Met Leu Ser Leu Ser Phe Ser Thr
            20                  25                  30

Thr Ser Leu Leu Ser Asn Tyr Trp Phe Val Gly Thr Gln Lys Val
```

238

```
Pro Lys Pro Leu Cys Glu Lys Gly Leu Ala Ala Lys Cys Phe Asp
                50                    55                    60
Met Pro Val Ser Leu Asp Gly Asp Thr Asn Thr Ser Thr Gln Glu
                65                    70                    75
Val Val Gln Tyr Asn Trp Glu Thr Gly Asp Asp Arg Phe Ser Phe
                80                    85                    90
Arg Ser Phe Arg Ser Gly Met Trp Leu Ser Cys Glu Glu Thr Val
                95                   100                   105
Glu Glu Pro Gly Glu Arg Cys Arg Ser Phe Ile Glu Leu Thr Pro
               110                   115                   120
Pro Ala Lys Arg Gly Glu Lys Gly Leu Leu Glu Phe Ala Thr Leu
               125                   130                   135
Gln Gly Pro Cys His Pro Thr Leu Arg Phe Gly Gly Lys Arg Leu
               140                   145                   150
Met Glu Lys Ala Ser Leu Pro Ser Pro Pro Leu Gly Leu Cys Gly
               155                   160                   165
Lys Asn Pro Met Val Ile Pro Gly Asn Ala Asp His Leu His Arg
               170                   175                   180
Thr Ser Ile His Gln Leu Pro Pro Ala Thr Asn Arg Leu Ala Thr
               185                   190                   195
His Trp Glu Pro Cys Leu Trp Ala Gln Thr Glu Arg Leu Cys Cys
               200                   205                   210
Cys Phe Leu Cys Pro Val Arg Ser Pro Gly Asp Gly Gly Pro His
               215                   220                   225
Asp Val Phe Thr Ser Leu Pro Ser Asp Cys Gln Leu Gly Ser Arg
               230                   235                   240
Arg Leu Glu Thr Thr Cys Leu Glu Leu Trp Leu Gly Leu Leu His
               245                   250                   255
Gly Leu Ala Leu Leu His Leu Leu His Gly Val Gly Cys His His
               260                   265                   270
Leu Gln His Val His Gln Asp Gly Ala Gly Val Gln Val Gln Ala
               275                   280                   285
```

<210> 273
<211> 1158
<212> DNA
<213> Homo sapiens

<400> 273
```
aactggaagg aaagaaagaa aggtcagctt tggcccagat gtggttaccc 50
cttggtctcc tgtctttatg tctttctcct cttcctattc tgtcatctcc 100
ctcacttaag tctcaggcct gtcagcagct cctgtggaca ttgccatccc 150
ctctggtagc cttcagagca aacaggacaa cctatgttat ggatgtttcc 200
```

```
accaaccagg gtagtggcat ggagcaccgt aaccatctgt gcttctgtga 250

tctctatgac agagccactt ctccacctct gaaatgttcc ctgctctgaa 300

atctggcatg agatggcaca ggtgaccacg cagaagccac cagaatcttg 350

cctgccctat tcctcctccc aagtctgttc tcttattgtc aacctcagca 400

caacaggctg gcgccaatgg cattacagag aaagcaatct gtgtggctag 450

tgggcagatt accatgcaag ccccaggaga aatggaggag ctttgtagcc 500

acctccctgt cagccagtat taacatgtcc ccttcccct gcccgccgt 550

agattcagga cattcgcccc tgtgtgccac caaaccagga ctttccctt 600

ggcttggcat ccctggctct ctcctggtac ccagcaagac gtctgttcca 650

gggcagtgta gcatctttca agctccgtta ctatggcgat ggccatgatg 700

ttacaatccc acttgcctga ataatcaagt gggaagggga agcagaggga 750

aatggggcca tgtgaatgca gctgctctgt tctccctacc ctgaggaaaa 800

accaaaggga agcaacagga acttctgcaa ctggtttta tcggaaagat 850

catcctgcct gcagatgctg ttgaagggggc acaagaaatg tagctggaga 900

agattgatga aagtgcaggt gtgtaaggaa atagaacagt ctgctgggag 950

tcagacctgg aattctgatt ccaaactctt tattactttg ggaagtcact 1000

cagcctcccc gtagccatct ccaggtgac ggaacccagt gtattacctg 1050

ctggaaccaa ggaaactaac aatgtaggtt actagtgaat accccaatgg 1100

tttctccaat tatgcccatg ccaccaaaac aataaaacaa aattctctaa 1150

cactgaaa 1158
```

<210> 274
<211> 86
<212> PRT
<213> Homo sapiens

<400> 274

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Met Trp Leu Pro Leu Gly Leu Leu Ser Leu Cys Leu Ser Pro Leu
 1               5                  10                  15

Pro Ile Leu Ser Ser Pro Ser Leu Lys Ser Gln Ala Cys Gln Gln
                20                  25                  30

Leu Leu Trp Thr Leu Pro Ser Pro Leu Val Ala Phe Arg Ala Asn
                35                  40                  45

Arg Thr Thr Tyr Val Met Asp Val Ser Thr Asn Gln Gly Ser Gly
                50                  55                  60

Met Glu His Arg Asn His Leu Cys Phe Cys Asp Leu Tyr Asp Arg
                65                  70                  75

Ala Thr Ser Pro Pro Leu Lys Cys Ser Leu Leu
                80                  85
```

240

<210> 275
<211> 2694
<212> DNA
<213> Homo sapiens

<400> 275
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gtagcgcgtc ttgggtctcc cggctgccgc tgctgccgcc gccgcctcgg 50

gtcgtggagc caggagcgac gtcaccgcca tggcaggcat caaagctttg 100

attagtttgt cctttggagg agcaatcgga ctgatgtttt tgatgcttgg 150

atgtgccctt ccaatataca acaaatactg gcccctcttt gttctatttt 200

tttacatcct ttcacctatt ccatactgca tagcaagaag attagtggat 250

gatacagatg ctatgagtaa cgcttgtaag gaacttgcca tctttcttac 300

aacgggcatt gtcgtgtcag cttttggact ccctattgta tttgccagag 350

cacatctgat tgagtgggga gcttgtgcac ttgttctcac aggaaacaca 400

gtcatctttg caactatact aggcttttc ttggtctttg gaagcaatga 450

cgacttcagc tggcagcagt ggtgaaaaga aattactgaa ctattgtcaa 500

atggacttcc tgtcatttgt tggccattca cgcacacagg agatggggca 550

gttaatgctg aatggtatag caagcctctt gggggtattt taggtgctcc 600

cttctcactt ttattgtaag catactattt tcacagagac ttgctgaagg 650

attaaaagga ttttctcttt tggaaaagct tgactgattt cacacttatc 700

tatagtatgc tttttgtggt gtcctgctga atttaaatat ttatgtgttt 750

ttcctgttag gttgattttt tttggaatca atatgcaatg ttaaacactt 800

ttttaatgta atcatttgca ttggttagga attcagaatt ccgccggctc 850

tattactggt caagtacatc ttttctctta aaattattta gcctccatta 900

ttacaaaaaa ttataaaaat aagttttcag tcagtcagga tgacatcact 950

cccaatgtta tgcagacata cagacggttg gcatacgtta tagactgtat 1000

actcagtgca aatatagctg catttatacc tcagaggggc caagtgttaa 1050

tgcccatgcc ctccgttaag ggttgttggt tttactggta gacagatgtt 1100

ttgtggattg aaaattattt tatggaattg ctacagagga gtgctttct 1150

tctcaattgt tagaagaatt tatgttaaac tttaaggtaa gggtgtaaaa 1200

acatttttga gataaggttt ttatttatgt ttattattgt tagagtgagt 1250

tgcaatgtgg gaagaaatga cattgaaatt ccagttttg aatcctgttt 1300

ctatttataa gtgaaatttg tgatctccta tcaacctttc atgttttacc 1350

ctgttaaaat ggcatacat ggaaccacta ctgatgaggg acagttgtat 1400

gtttgcatca tatatgccag aaaaccttcc tctgcttcct ccttttgact 1450
```

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tatttggtat gttgtatata ttacataaaa taacttttca aatatagttt 1500

aataacactt agaagtgttt acttacctgg aaaataattg ctatgccgta 1550

cattcagagt gcccctccc ctgcaaggcc ttgccatgat taacaagtaa 1600

cttgttagtc ttacagataa ttcatgcatt aacagtttaa gatttagacc 1650

atggtaatag tagttcttat tctctaaggt tatatcatat gtaatttaaa 1700

agtattttta agacaagttt cctgtatacc tctgaactgt tttgattttg 1750

agttcatcat gatagatctg ctgtttcctt ataaaaggca tttgttgtgt 1800

gagttaatgc aaagtagcca agtccagcta tatagcagct tcagaaacat 1850

acctgaccaa aaaattccca gtaaccaggc atgatcaatt tatagtggtc 1900

gtttacatct aataattatc aggacttttt tcaggagtgg gttataaaaa 1950

cattcaagtt ggtctgacag tattttgtta aggatatttg tttgtatgtt 2000

tattcagtat acttacataa aaattatttc gccatcagcc aaaactcagt 2050

aatcatgaca gctgtctgtt gttttatgaa gtttatttct caagaaaatg 2100

ggaataaatt tgggatttgt tcagcttttt tactaaagat gcctaaagcc 2150

acaggtttta ttgcctaact taagccatga cttttagata tgagatgacg 2200

ggaagcagga cgaaatatcg gcgtgtggct ggagccttcc cactggaggc 2250

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cctattttct gttctggatg tcagtgcagt gcactgctac tgttttatcc 2450

acttggccac agactttttc taacagctgc gtattatttc tatatactaa 2500

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gctgtctctg atttctaggc tagttacttg agatatgaat tttccataga 2600

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tgatgaaaca ataaagattt taaatatcta ttttaaaaaa aaaa 2694
```

<210> 276
<211> 131
<212> PRT
<213> Homo sapiens

<400> 276
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Met Ala Gly Ile Lys Ala Leu Ile Ser Leu Ser Phe Gly Gly Ala
1               5                   10                  15

Ile Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr
                20                  25                  30

Asn Lys Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser
```

242

Pro Ile Pro Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp
                    50   55   60

Ala Met Ser Asn Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr
                    65   70   75

Gly Ile Val Val Ser Ala Phe Gly Leu Pro Ile Val Phe Ala Arg
                    80   85   90

Ala His Leu Ile Glu Trp Gly Ala Cys Ala Leu Val Leu Thr Gly
                    95   100   105

Asn Thr Val Ile Phe Ala Thr Ile Leu Gly Phe Phe Leu Val Phe
                    110   115   120

Gly Ser Asn Asp Asp Phe Ser Trp Gln Gln Trp
                    125   130

<210> 277
<211> 4104
<212> DNA
<213> Homo sapiens

<400> 277
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 cacgcgtccg cccacgcgtc cgcccacgcg tccggtgcaa gctcgcgccg 100

 cacactgcct ggtggaggga aggagcccgg gcgcctctcg ccgctccccg 150

 cgccgccgtc cgcacctccc caccgcccgc cgcccgccgc ccgccgcccg 200

 caaagcatga gtgagcccgc tctctgcagc tgcccggggc gcgaatggca 250

 ggctgtttcc gcggagtaaa aggtggcgcc ggtcagtggt cgtttccaat 300

 gacggacatt aaccagactg tcagatcctg gggagtcgcg agccccgagt 350

 ttggagtttt ttcccccac aacgtcacag tccgaactgc agagggaaag 400

 gaaggcggca ggaaggcgaa gctcgggctc cggcacgtag ttgggaaact 450

 tgcgggtcct agaagtcgcc tccccgcctt gccggccgcc cttgcagccc 500

 cgagccgagc agcaaagtga gacattgtgc gcctgccaga tccgccggcc 550

 gcggaccggg gctgcctcgg aaacacagag gggtcttctc tcgccctgca 600

 tataattagc ctgcacacaa agggagcagc tgaatggagg ttgtcactct 650

 ctggaaaagg atttctgacc gagcgcttcc aatggacatt ctccagtctc 700

 tctgaaaga ttctcgctaa tggatttcct gctgctcggt ctctgtctat 750

 actggctgct gaggaggccc tcgggggtgg tcttgtgtct gctgggggcc 800

 tgctttcaga tgctgcccgc cgcccccagc gggtgcccgc agctgtgccg 850

 gtgcgagggg cggctgctgt actgcgaggc gctcaacctc accgaggcgc 900

 cccacaacct gtccggcctg ctgggcttgt ccctgcgcta caacagcctc 950

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ctatctggat cacaatcaca tctgctccgt gcaggggggac gcctttcaga 1050

aactgcgccg agttaaggaa ctcacgctga gttccaacca gatcacccaa 1100

ctgcccaaca ccaccttccg gcccatgccc aacctgcgca gcgtggacct 1150

ctcgtacaac aagctgcagg cgctcgcgcc cgacctcttc cacgggctgc 1200

ggaagctcac cacgctgcat atgcgggcca acgccatcca gtttgtgccc 1250

gtgcgcatct tccaggactg ccgcagcctc aagtttctcg acatcggata 1300

caatcagctc aagagtctgg cgcgcaactc tttcgccggc ttgtttaagc 1350

tcaccgagct gcacctcgag cacaacgact tggtcaaggt gaacttcgcc 1400

cacttcccgc gcctcatctc cctgcactcg ctctgcctgc ggaggaacaa 1450

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tggacttgtc gggcaacgag atcgagtaca tggagcccca tgtgttcgag 1550

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cgcggacggc ggggaggggc agcacgacgg cacattcgag cctgccaccg 1950

tggctcttcc aggcggcgag cacgccgaga acgccgtgca gatccacaag 2000

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ggtgctctac gtgtcctgga agtgtttccc agccagcctc aggcagctca 2100

gacagtgctt tgtcacgcag cgcaggaagc aaaagcagaa acagaccatg 2150

catcagatgg ctgccatgtc tgcccaggaa tactacgttg attacaaacc 2200

gaaccacatt gagggagccc tggtgatcat caacgagtat ggctcgtgta 2250

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tgaaacttta aggggatctc tcccagagac ttgacatttt agctttattg 2450

tgtcttaaaa acaaaagcga attaaaacac aacaaaaaac cccaccccac 2500

aaccttcagg acagtctatc ttaaatttca tatgagaact ccttcctccc 2550
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244

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ataagacaga gagagaataa tcgtgctttg ttttatgcta ctcctcccac 2650

cctgcccatg attaaacatc atgtatgtag aagatcttaa gtccatacgc 2700

atttcatgaa gaaccattgg aaagaggaat ctgcaatctg ggagcttaag 2750

agcaaatgat gaccatagaa agctatgttc ttactttgtg tgtgtgtctg 2800

tatgtttctg cgttgtgtgt ctttgtaggc aagcaaacgt tgtctacaca 2850

aacgggaatt tagctcacat catttcatgc ccctgtgcct ctagctctgg 2900

agattggtgg ggggaggtgg ggggaaacgg caggaataag ggaaagtggt 2950

agttttaact aaggttttgt aacacttgaa atcttttctt tctcaaatta 3000

attatcttta agcttcaaga aacttgctct gacccctcta agcaaactac 3050

taagcattta aaagagaatc taatttttaa aggtgtagca cctttttttt 3100

tattcttccc acagagggtg ctaatctcat tatgctgtgc tatctgaaaa 3150

gaacttaagg ccacaattca cgtctcgtcc tgggcattgt gatggattga 3200

ccctccattt gcagtacctt cccagctgat taaagttcag cagtggtatt 3250

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gacactctca caccagtctt agccctagta gtttttttagg ttggaccaga 3350

ggaagcaggt taaatgagac ctgtcctctg ctgcactcag aaaaaatagg 3400

cagtccctga tgctcagatc ttagccttga tattaatagt tgagaccacc 3450

tacccacaat gcagcctata ctcccaagac tacaaagtta ccatcgcaaa 3500

ggaaaggtta ttccagtaaa aggaaatagt tttctcaacc atttaaaaat 3550

attcttctga actcatcaaa gtagaagagc ccccaacctt ttctctctgc 3600

cttcaagaag gcagacattt ggtatgattt agcatcaaca acacatttat 3650

gagtatatgt aagtaatcag aggggcaaat gccacttgtt attcctccca 3700

agttttccaa gcaagtacac acagatctct ggtaggatta ggggccactt 3750

gtgtttccgg cttatttttag tcgacttgtc agcaagtttg atgcctagtc 3800

tatctgacat ggcccagtag aacagggcat tgatggatca catgagatgg 3850

tagaaggaac atcatcacat acccctctca cagagaaaat tatcaaagaa 3900

ccagaaatta tatctgtttt ggagcaagag tgtcataatg tttcagggta 3950

gtcaaaataa acataaatta tctcctctag atgagtggcg atgttggctg 4000

atttgggtct gccattgaca gaatgtcaaa taaaaaggaa ttagctagaa 4050

tatgaccatt aaatgtgctt ctgaaatata ttttgagata ggtttagaat 4100

gtca 4104
```

245

<210> 278
<211> 522
<212> PRT
<213> Homo sapiens

<400> 278

```
Met Asp Phe Leu Leu Leu Gly Leu Cys Leu Tyr Trp Leu Leu Arg
 1               5                   10                  15

Arg Pro Ser Gly Val Val Leu Cys Leu Leu Gly Ala Cys Phe Gln
                20                  25                  30

Met Leu Pro Ala Ala Pro Ser Gly Cys Pro Gln Leu Cys Arg Cys
                35                  40                  45

Glu Gly Arg Leu Leu Tyr Cys Glu Ala Leu Asn Leu Thr Glu Ala
                50                  55                  60

Pro His Asn Leu Ser Gly Leu Leu Gly Leu Ser Leu Arg Tyr Asn
                65                  70                  75

Ser Leu Ser Glu Leu Arg Ala Gly Gln Phe Thr Gly Leu Met Gln
                80                  85                  90

Leu Thr Trp Leu Tyr Leu Asp His Asn His Ile Cys Ser Val Gln
                95                  100                 105

Gly Asp Ala Phe Gln Lys Leu Arg Arg Val Lys Glu Leu Thr Leu
                110                 115                 120

Ser Ser Asn Gln Ile Thr Gln Leu Pro Asn Thr Thr Phe Arg Pro
                125                 130                 135

Met Pro Asn Leu Arg Ser Val Asp Leu Ser Tyr Asn Lys Leu Gln
                140                 145                 150

Ala Leu Ala Pro Asp Leu Phe His Gly Leu Arg Lys Leu Thr Thr
                155                 160                 165

Leu His Met Arg Ala Asn Ala Ile Gln Phe Val Pro Val Arg Ile
                170                 175                 180

Phe Gln Asp Cys Arg Ser Leu Lys Phe Leu Asp Ile Gly Tyr Asn
                185                 190                 195

Gln Leu Lys Ser Leu Ala Arg Asn Ser Phe Ala Gly Leu Phe Lys
                200                 205                 210

Leu Thr Glu Leu His Leu Glu His Asn Asp Leu Val Lys Val Asn
                215                 220                 225

Phe Ala His Phe Pro Arg Leu Ile Ser Leu His Ser Leu Cys Leu
                230                 235                 240

Arg Arg Asn Lys Val Ala Ile Val Val Ser Ser Leu Asp Trp Val
                245                 250                 255

Trp Asn Leu Glu Lys Met Asp Leu Ser Gly Asn Glu Ile Glu Tyr
                260                 265                 270

Met Glu Pro His Val Phe Glu Thr Val Pro His Leu Gln Ser Leu
                275                 280                 285
```

246

```
Gln Leu Asp Ser Asn Arg Leu Thr Tyr Ile Glu Pro Arg Ile Leu
            290                 295                 300

Asn Ser Trp Lys Ser Leu Thr Ser Ile Thr Leu Ala Gly Asn Leu
            305                 310                 315

Trp Asp Cys Gly Arg Asn Val Cys Ala Leu Ala Ser Trp Leu Ser
            320                 325                 330

Asn Phe Gln Gly Arg Tyr Asp Gly Asn Leu Gln Cys Ala Ser Pro
            335                 340                 345

Glu Tyr Ala Gln Gly Glu Asp Val Leu Asp Ala Val Tyr Ala Phe
            350                 355                 360

His Leu Cys Glu Asp Gly Ala Glu Pro Thr Ser Gly His Leu Leu
            365                 370                 375

Ser Ala Val Thr Asn Arg Ser Asp Leu Gly Pro Pro Ala Ser Ser
            380                 385                 390

Ala Thr Thr Leu Ala Asp Gly Gly Glu Gly Gln His Asp Gly Thr
            395                 400                 405

Phe Glu Pro Ala Thr Val Ala Leu Pro Gly Gly Glu His Ala Glu
            410                 415                 420

Asn Ala Val Gln Ile His Lys Val Val Thr Gly Thr Met Ala Leu
            425                 430                 435

Ile Phe Ser Phe Leu Ile Val Val Leu Val Leu Tyr Val Ser Trp
            440                 445                 450

Lys Cys Phe Pro Ala Ser Leu Arg Gln Leu Arg Gln Cys Phe Val
            455                 460                 465

Thr Gln Arg Arg Lys Gln Lys Gln Lys Gln Thr Met His Gln Met
            470                 475                 480

Ala Ala Met Ser Ala Gln Glu Tyr Tyr Val Asp Tyr Lys Pro Asn
            485                 490                 495

His Ile Glu Gly Ala Leu Val Ile Ile Asn Glu Tyr Gly Ser Cys
            500                 505                 510

Thr Cys His Gln Gln Pro Ala Arg Glu Cys Glu Val
            515                 520
```

<210> 279
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 279
 tccgtgcagg gggacgcctt tcagaaactg cgccgagtta aggaac 46

<210> 280
<211> 709
<212> DNA
<213> Homo sapiens

<400> 280

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ctgcagctct gcgcactgac ccaggcggtc tccaaactct gggtcccaa 100

cacggacttc gacgtcgcag ccaactggag ccagaaccgg accccgtgcg 150

ccggcggcgc cgttgagttc ccggcggaca agatggtgtc agtcctggtg 200

caagaaggtc acgccgtctc agacatgctc ctgccgctgg atggggaact 250

cgtcctggct tcaggagccg gattcggcgt ctcagacgtg ggctcgcacc 300

tggactgtgg cgcgggcgaa cctgccgtct tccgcgactc tgaccgcttc 350

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gtgcgtgtcc gcagcatctc ggctctgggc cggacgttca cgcgcgacga 550

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ggccgggcgc gctgagcgtg ggccccgagg actgcgcgga cccgtcgggc 650

tgcgtctgcg gcaacgcgga ggcgcagccg tggatctgcg cggccctgct 700

ccagcccct 709
```

<210> 281
<211> 229
<212> PRT
<213> Homo sapiens

<400> 281

```
Met Gly Val Leu Gly Arg Val Leu Leu Trp Leu Gln Leu Cys Ala
 1               5                  10                  15

Leu Thr Gln Ala Val Ser Lys Leu Trp Val Pro Asn Thr Asp Phe
                 20                  25                  30

Asp Val Ala Ala Asn Trp Ser Gln Asn Arg Thr Pro Cys Ala Gly
                 35                  40                  45

Gly Ala Val Glu Phe Pro Ala Asp Lys Met Val Ser Val Leu Val
                 50                  55                  60

Gln Glu Gly His Ala Val Ser Asp Met Leu Leu Pro Leu Asp Gly
                 65                  70                  75

Glu Leu Val Leu Ala Ser Gly Ala Gly Phe Gly Val Ser Asp Val
                 80                  85                  90

Gly Ser His Leu Asp Cys Gly Ala Gly Glu Pro Ala Val Phe Arg
                 95                  100                 105

Asp Ser Asp Arg Phe Ser Trp His Asp Pro His Leu Trp Arg Ser
                 110                 115                 120

Gly Asp Glu Ala Pro Gly Leu Phe Phe Val Asp Ala Glu Arg Val
                 125                 130                 135
```

```
Pro Cys Arg His Asp Asp Val Phe Phe Pro Pro Ser Ala Ser Phe
            140                 145                 150

Arg Val Gly Leu Gly Pro Gly Ala Ser Pro Val Arg Val Arg Ser
            155                 160                 165

Ile Ser Ala Leu Gly Arg Thr Phe Thr Arg Asp Glu Asp Leu Ala
            170                 175                 180

Val Phe Leu Ala Ser Arg Ala Gly Arg Leu Arg Phe His Gly Pro
            185                 190                 195

Gly Ala Leu Ser Val Gly Pro Glu Asp Cys Ala Asp Pro Ser Gly
            200                 205                 210

Cys Val Cys Gly Asn Ala Glu Ala Gln Pro Trp Ile Cys Ala Ala
            215                 220                 225

Leu Leu Gln Pro


<210> 282
<211> 644
<212> DNA
<213> Homo sapiens

<400> 282
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 tgtgttttgc acttaccctg tgttctgcct tttggtggca taacaaggga 150

 cttgcactta tcttctgcat tttgcagtct ttggcattga cgtggtacag 200

 cctttccttc ataccatttg caagggatgc tgtgaagaag tgttttgccg 250

 tgtgtcttgc ataattcatg gccagtttta tgaagctttg gaaggcacta 300

 tggacagaag ctggtggaca gttttgtaac tatcttcgaa acctctgtct 350

 tacagacatg tgcctttat cttgcagcaa tgtgttgctt gtgattcgaa 400

 catttgaggg ttacttttgg aagcaacaat acattctcga acctgaatgt 450

 cagtagcaca ggatgagaag tgggttctgt atcttgtgga gtggaatctt 500

 cctcatgtac ctgtttcctc tctggatgtt gtcccactga attcccatga 550

 atacaaacct attcagcaac agcaaaaaaa aaaaaaaaaa aaaaaaaaaa 600

 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 644

<210> 283
<211> 77
<212> PRT
<213> Homo sapiens

<400> 283
 Met Gly Pro Val Lys Gln Leu Lys Arg Met Phe Glu Pro Thr Arg
   1               5                  10                  15

 Leu Ile Ala Thr Ile Met Val Leu Leu Cys Phe Ala Leu Thr Leu
```

249

Cys Ser Ala Phe Trp Trp His Asn Lys Gly Leu Ala Leu Ile Phe
              35   40   45

Cys Ile Leu Gln Ser Leu Ala Leu Thr Trp Tyr Ser Leu Ser Phe
              50   55   60

Ile Pro Phe Ala Arg Asp Ala Val Lys Lys Cys Phe Ala Val Cys
              65   70   75

Leu Ala

<210> 284
<211> 2623
<212> DNA
<213> Homo sapiens

<400> 284
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ctcccgccgt tacccgcggc gcgcccgagg gagtctcctc cagaccctcc 100

ctcccgttgc tccaaactaa tacggactga acggatcgct gcgagggtgg 150

gagagaaaat tagggggaga aaggacagag agagcaacta ccatccatag 200

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cgaaatttat cttggtgtcc ttcatacttg ctgcactgag tctttcaacc 300

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tggattccgt tgggattact tatataaagt tccaacgccc catttcatt 400

atattatgaa atatggtgtt cacgtgaagc aagttactaa tgttttatt 450

acaaaaacct accctaacca ttatactttg gtaactggcc tctttgcaga 500

gaatcatggg attgttgcaa atgatatgtt tgatcctatt cggaacaaat 550

ctttctcctt ggatcacatg aatatttatg attccaagtt ttgggaagaa 600

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attgttgaat ggtttacgtc aaaagagccc ataaatcttg gtcttctcta 800

ttgggaagac cctgatgaca tgggccacca tttgggacct gacagtccgc 850

tcatggggcc tgtcatttca gatattgaca agaagttagg atatctcata 900

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aagtgatcat ggaatgacgc agtgctctga ggaaaggtta atagaacttg 1000

accagtacct ggataaagac cactataccc tgattgatca atctccagta 1050

gcagccatct tgccaaaaga aggtaaattt gatgaagtct atgaagcact 1100

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gctgatgaag ggtggcacat tttacagaat aagtcagatg actttctgtt 1250

aggcaaccac ggttacgata atgcgttagc agatatgcat ccaatatttt 1300

tagcccatgg tcctgccttc agaaagaatt tctcaaaaga agccatgaac 1350

tccacagatt tgtacccact actatgccac ctcctcaata tcactgccat 1400

gccacacaat ggatcattct ggaatgtcca ggatctgctc aattcagcaa 1450

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tattgaagtg gagattccat aattatgtca gtgtttaaag gtttcaaatt 1750

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ttaggtatac acacacac acacacacac atacacacac acggaccaaa 1850

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gataatgtat atatttagca actttgcact atgtaaagta ccttatatat 2000

tgcactttaa atttctctcc tgatgggtac tttaatttga aatgcacttt 2050

atggacagtt atgtcttata acttgattga aaatgacaac tttttgcacc 2100

catgtcacag aatacttgtt acgcattgtt caaactgaag gaaatttcta 2150

ataatcccga ataatgaaca tagaaatcta tctccataaa ttgagagaag 2200

aagaaggtga taagtgttga aaattaaatg tgataacctt tgaaccttga 2250

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tagaagcaac caggcaccat ctcagcaatg ttttctcttg tttgtaatta 2550

tttgctcctt tgaaaattaa atcactatta attacattaa aaatcaaatt 2600

ggataaaaaa aaaaaaaaaa aaa 2623
```

<210> 285

<211> 477
<212> PRT
<213> Homo sapiens

<400> 285
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Met Thr Ser Lys Phe Ile Leu Val Ser Phe Ile Leu Ala Ala Leu
 1               5                  10                      15

Ser Leu Ser Thr Thr Phe Ser Leu Gln Leu Asp Gln Gln Lys Val
                20                  25                      30

Leu Leu Val Ser Phe Asp Gly Phe Arg Trp Asp Tyr Leu Tyr Lys
                35                  40                      45

Val Pro Thr Pro His Phe His Tyr Ile Met Lys Tyr Gly Val His
                50                  55                      60

Val Lys Gln Val Thr Asn Val Phe Ile Thr Lys Thr Tyr Pro Asn
                65                  70                      75

His Tyr Thr Leu Val Thr Gly Leu Phe Ala Glu Asn His Gly Ile
                80                  85                      90

Val Ala Asn Asp Met Phe Asp Pro Ile Arg Asn Lys Ser Phe Ser
                95                  100                     105

Leu Asp His Met Asn Ile Tyr Asp Ser Lys Phe Trp Glu Glu Ala
                110                 115                     120

Thr Pro Ile Trp Ile Thr Asn Gln Arg Ala Gly His Thr Ser Gly
                125                 130                     135

Ala Ala Met Trp Pro Gly Thr Asp Val Lys Ile His Lys Arg Phe
                140                 145                     150

Pro Thr His Tyr Met Pro Tyr Asn Glu Ser Val Ser Phe Glu Asp
                155                 160                     165

Arg Val Ala Lys Ile Val Glu Trp Phe Thr Ser Lys Glu Pro Ile
                170                 175                     180

Asn Leu Gly Leu Leu Tyr Trp Glu Asp Pro Asp Asp Met Gly His
                185                 190                     195

His Leu Gly Pro Asp Ser Pro Leu Met Gly Pro Val Ile Ser Asp
                200                 205                     210

Ile Asp Lys Lys Leu Gly Tyr Leu Ile Gln Met Leu Lys Lys Ala
                215                 220                     225

Lys Leu Trp Asn Thr Leu Asn Leu Ile Ile Thr Ser Asp His Gly
                230                 235                     240

Met Thr Gln Cys Ser Glu Glu Arg Leu Ile Glu Leu Asp Gln Tyr
                245                 250                     255

Leu Asp Lys Asp His Tyr Thr Leu Ile Asp Gln Ser Pro Val Ala
                260                 265                     270

Ala Ile Leu Pro Lys Glu Gly Lys Phe Asp Glu Val Tyr Glu Ala
                275                 280                     285

Leu Thr His Ala His Pro Asn Leu Thr Val Tyr Lys Lys Glu Asp
```

252

```
                    290                  295                  300
     Val Pro Glu Arg Trp His Tyr Lys Tyr Asn Ser Arg Ile Gln Pro
                    305                  310                  315
     Ile Ile Ala Val Ala Asp Glu Gly Trp His Ile Leu Gln Asn Lys
                    320                  325                  330
     Ser Asp Asp Phe Leu Leu Gly Asn His Gly Tyr Asp Asn Ala Leu
                    335                  340                  345
     Ala Asp Met His Pro Ile Phe Leu Ala His Gly Pro Ala Phe Arg
                    350                  355                  360
     Lys Asn Phe Ser Lys Glu Ala Met Asn Ser Thr Asp Leu Tyr Pro
                    365                  370                  375
     Leu Leu Cys His Leu Leu Asn Ile Thr Ala Met Pro His Asn Gly
                    380                  385                  390
     Ser Phe Trp Asn Val Gln Asp Leu Leu Asn Ser Ala Met Pro Arg
                    395                  400                  405
     Val Val Pro Tyr Thr Gln Ser Thr Ile Leu Leu Pro Gly Ser Val
                    410                  415                  420
     Lys Pro Ala Glu Tyr Asp Gln Glu Gly Ser Tyr Pro Tyr Phe Ile
                    425                  430                  435
     Gly Val Ser Leu Gly Ser Ile Ile Val Ile Val Phe Phe Val Ile
                    440                  445                  450
     Phe Ile Lys His Leu Ile His Ser Gln Ile Pro Ala Leu Gln Asp
                    455                  460                  465
     Met His Ala Glu Ile Ala Gln Pro Leu Leu Gln Ala
                    470                  475
<210> 286
<211> 1337
<212> DNA
<213> Homo sapiens

<400> 286
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 agggaggtga agaaaccaag acgcagagag gccaagcccc ttgccttggg 150

 tcacacagcc aaaggaggca gagccagaac tcacaaccag atccagaggc 200

 aacagggaca tggccacctg ggacgaaaag gcagtcaccc gcagggccaa 250

 ggtggctccc gctgagagga tgagcaagtt cttaaggcac ttcacggtcg 300

 tgggagacga ctaccatgcc tggaacatca actacaagaa atgggagaat 350

 gaagaggagg aggaggagga ggagcagcca ccacccacac cagtctcagg 400

 cgaggaaggc agagctgcag cccctgacgt tgcccctgcc cctggccccg 450

 cacccagggc cccccttgac ttcaggggca tgttgaggaa actgttcagc 500
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253

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tcccacaggt ttcaggtcat catcatctgc ttggtggttc tggatgccct 550

cctggtgctt gctgagctca tcctggacct gaagatcatc cagcccgaca 600

agaataacta tgctgccatg gtattccact acatgagcat caccatcttg 650

gtctttttta tgatggagat catctttaaa ttatttgtct tccgcctgag 700

ttctttcacc acaagtttga gatcctggat gcccgtcgtg gtggtggtct 750

cattcatcct ggacattgtc ctcctgttcc aggagcacca gtttgaggct 800

ctgggcctgc tgattctgct ccggctgtgg cgggtggccc ggatcatcaa 850

tgggattatc atctcagtta agacacgttc agaacggcaa ctcttaaggt 900

taaaacagat gaatgtacaa ttggccgcca agattcaaca ccttgagttc 950

agctgctctg agaagcccct ggactgatga gtttgctgta tcaacctgta 1000

aggagaagct ctctccggat ggctatggga atgaaagaat ccgacttcta 1050

ctctcacaca gccaccgtga aagtcctgga gtaaaatgtg ctgtgtacag 1100

aagagagaga aggaagcagg ctggcatgtt cactgggctg gtgttacgac 1150

agagaacctg acagtcactg gccagttatc acttcagatt acaaatcaca 1200

cagagcatct gcctgttt'tc aatcacaaga gaacaaaacc aaaatctata 1250

aagatattct gaaaatatga cagaatttga caaataaaag cataaacgtg 1300

taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 1337
```

<210> 287
<211> 255
<212> PRT
<213> Homo sapiens

<400> 287

```
Met Ala Thr Trp Asp Glu Lys Ala Val Thr Arg Arg Ala Lys Val
 1               5                  10                  15

Ala Pro Ala Glu Arg Met Ser Lys Phe Leu Arg His Phe Thr Val
                20                  25                  30

Val Gly Asp Asp Tyr His Ala Trp Asn Ile Asn Tyr Lys Lys Trp
                35                  40                  45

Glu Asn Glu Glu Glu Glu Glu Glu Glu Gln Pro Pro Pro Thr
                50                  55                  60

Pro Val Ser Gly Glu Glu Gly Arg Ala Ala Ala Pro Asp Val Ala
                65                  70                  75

Pro Ala Pro Gly Pro Ala Pro Arg Ala Pro Leu Asp Phe Arg Gly
                80                  85                  90

Met Leu Arg Lys Leu Phe Ser Ser His Arg Phe Gln Val Ile Ile
                95                  100                 105

Ile Cys Leu Val Val Leu Asp Ala Leu Leu Val Leu Ala Glu Leu
                110                 115                 120
```

254

```
Ile Leu Asp Leu Lys Ile Ile Gln Pro Asp Lys Asn Asn Tyr Ala
              125                 130                      135

Ala Met Val Phe His Tyr Met Ser Ile Thr Ile Leu Val Phe Phe
              140                 145                      150

Met Met Glu Ile Ile Phe Lys Leu Phe Val Phe Arg Leu Ser Ser
              155                 160                      165

Phe Thr Thr Ser Leu Arg Ser Trp Met Pro Val Val Val Val Val
              170                 175                      180

Ser Phe Ile Leu Asp Ile Val Leu Leu Phe Gln Glu His Gln Phe
              185                 190                      195

Glu Ala Leu Gly Leu Leu Ile Leu Leu Arg Leu Trp Arg Val Ala
              200                 205                      210

Arg Ile Ile Asn Gly Ile Ile Ile Ser Val Lys Thr Arg Ser Glu
              215                 220                      225

Arg Gln Leu Leu Arg Leu Lys Gln Met Asn Val Gln Leu Ala Ala
              230                 235                      240

Lys Ile Gln His Leu Glu Phe Ser Cys Ser Glu Lys Pro Leu Asp
              245                 250                      255
```

<210> 288
<211> 3334
<212> DNA
<213> Homo sapiens

<400> 288

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ggccgccaac atgctctgtc tgtgcctgta cgtgccggtc atcggggaag 100

cccagaccga gttccagtac tttgagtcga aggggctccc tgccgagctg 150

aagtccattt tcaagctcag tgtcttcatc ccctcccagg aattctccac 200

ctaccgccag tggaagcaga aaattgtaca agctggagat aaggaccttg 250

atgggcagct agactttgaa gaatttgtcc attatctcca agatcatgag 300

aagaagctga ggctggtgtt taagattttg dacaaaaaga atgatggacg 350

cattgacgcg caggagatca tgcagtccct gcgggacttg ggagtcaaga 400

tatctgaaca gcaggcagaa aaaattctca agagcatgga taaaaacggc 450

acgatgacca tcgactggaa cgagtggaga gactaccacc tcctccaccc 500

cgtggaaaac atccccgaga tcatcctcta ctggaagcat tccacgatct 550

ttgatgtggg tgagaatcta acggtcccgg atgagttcac agtggaggag 600

aggcagacgg ggatgtggtg gagacacctg gtggcaggag gtggggcagg 650

ggccgtatcc agaacctgca cggcccccct ggacaggctc aaggtgctca 700

tgcaggtcca tgcctccgc agcaacaaca tgggcatcgt tggtggcttc 750
```

255

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actcagatga ttcgagaagg aggggccagg tcactctggc ggggcaatgg 800

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atgagcagat caagcgcctt gttggtagtg accaggagac tctgaggatt 900

cacgagaggc ttgtggcagg gtccttggca ggggccatcg cccagagcag 950

catctaccca atggaggtcc tgaagacccg gatggcgctg cggaagacag 1000

gccagtactc aggaatgctg gactgcgcca ggaggatcct ggccagagag 1050

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cccctatgcc ggcatcgacc ttgcagtcta cgagacgctc aagaatgcct 1150

ggctgcagca ctatgcagtg aacagcgcgg accccggcgt gtttgtgctc 1200

ctggcctgtg gcaccatgtc cagtacctgt ggccagctgg ccagctaccc 1250

cctggcccta gtcaggaccc ggatgcaggc gcaagcctct attgagggcg 1300

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cccagctgtg agcatcagct acgtggtcta cgagaacctg aagatcaccc 1450

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ggcagtggag caccatgttt gagggcgaag ggcagagcgt ttgtgtgttc 2300

tggggaggga aggaaaaggt gttggaggcc ttaattatgg actgttggga 2350
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256

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aaagggtttt gtccagaagg acaagccgga caaatgagcg acttctgtgc 2400

ttccagagga agacgaggga gcaggagctt ggctgactgc tcagagtctg 2450

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aatagcttgt cattttcaag ttcattttttt attcatattt atgttcatgg 2650

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aatgcaaaaa ttgttatata tgaacatata actggagtcg tcaaaaagca 3200

aattaagaaa gaattggacg ttagaagttg tcatttaaag cagccttcta 3250

ataaagttgt ttcaaagctg aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3300

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 3334

<210> 289
<211> 469
<212> PRT
<213> Homo sapiens

<400> 289
Met Leu Cys Leu Cys Leu Tyr Val Pro Val Ile Gly Glu Ala Gln
 1               5                  10                  15

Thr Glu Phe Gln Tyr Phe Glu Ser Lys Gly Leu Pro Ala Glu Leu
                20                  25                  30

Lys Ser Ile Phe Lys Leu Ser Val Phe Ile Pro Ser Gln Glu Phe
                35                  40                  45

Ser Thr Tyr Arg Gln Trp Lys Gln Lys Ile Val Gln Ala Gly Asp
                50                  55                  60

Lys Asp Leu Asp Gly Gln Leu Asp· Phe Glu Glu Phe Val His Tyr
                65                  70                  75

Leu Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ile Leu
                80                  85                  90
```

257

```
Asp Lys Lys Asn Asp Gly Arg Ile Asp Ala Gln Glu Ile Met Gln
            95                  100                 105

Ser Leu Arg Asp Leu Gly Val Lys Ile Ser Glu Gln Gln Ala Glu
            110                 115                 120

Lys Ile Leu Lys Ser Met Asp Lys Asn Gly Thr Met Thr Ile Asp
            125                 130                 135

Trp Asn Glu Trp Arg Asp Tyr His Leu Leu His Pro Val Glu Asn
            140                 145                 150

Ile Pro Glu Ile Ile Leu Tyr Trp Lys His Ser Thr Ile Phe Asp
            155                 160                 165

Val Gly Glu Asn Leu Thr Val Pro Asp Glu Phe Thr Val Glu Glu
            170                 175                 180

Arg Gln Thr Gly Met Trp Trp Arg His Leu Val Ala Gly Gly Gly
            185                 190                 195

Ala Gly Ala Val Ser Arg Thr Cys Thr Ala Pro Leu Asp Arg Leu
            200                 205                 210

Lys Val Leu Met Gln Val His Ala Ser Arg Ser Asn Asn Met Gly
            215                 220                 225

Ile Val Gly Gly Phe Thr Gln Met Ile Arg Glu Gly Gly Ala Arg
            230                 235                 240

Ser Leu Trp Arg Gly Asn Gly Ile Asn Val Leu Lys Ile Ala Pro
            245                 250                 255

Glu Ser Ala Ile Lys Phe Met Ala Tyr Glu Gln Ile Lys Arg Leu
            260                 265                 270

Val Gly Ser Asp Gln Glu Thr Leu Arg Ile His Glu Arg Leu Val
            275                 280                 285

Ala Gly Ser Leu Ala Gly Ala Ile Ala Gln Ser Ser Ile Tyr Pro
            290                 295                 300

Met Glu Val Leu Lys Thr Arg Met Ala Leu Arg Lys Thr Gly Gln
            305                 310                 315

Tyr Ser Gly Met Leu Asp Cys Ala Arg Arg Ile Leu Ala Arg Glu
            320                 325                 330

Gly Val Ala Ala Phe Tyr Lys Gly Tyr Val Pro Asn Met Leu Gly
            335                 340                 345

Ile Ile Pro Tyr Ala Gly Ile Asp Leu Ala Val Tyr Glu Thr Leu
            350                 355                 360

Lys Asn Ala Trp Leu Gln His Tyr Ala Val Asn Ser Ala Asp Pro
            365                 370                 375

Gly Val Phe Val Leu Leu Ala Cys Gly Thr Met Ser Ser Thr Cys
            380                 385                 390

Gly Gln Leu Ala Ser Tyr Pro Leu Ala Leu Val Arg Thr Arg Met
            395                 400                 405
```

258

```
Gln Ala Gln Ala Ser Ile Glu Gly Ala Pro Glu Val Thr Met Ser
                410                 415                 420

Ser Leu Phe Lys His Ile Leu Arg Thr Glu Gly Ala Phe Gly Leu
                425                 430                 435

Tyr Arg Gly Leu Ala Pro Asn Phe Met Lys Val Ile Pro Ala Val
                440                 445                 450

Ser Ile Ser Tyr Val Val Tyr Glu Asn Leu Lys Ile Thr Leu Gly
                455                 460                 465

Val Gln Ser Arg
```

<210> 290
<211> 1658
<212> DNA
<213> Homo sapiens

<400> 290

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gcatcatcat tattctggct ggagcaattg cactcatcat tggctttggt 150

atttcaggga gacactccat cacagtcact actgtcgcct cagctgggaa 200

cattgggag gatggaatcc tgagctgcac ttttgaacct gacatcaaac 250

tttctgatat cgtgatacaa tggctgaagg aaggtgtttt aggcttggtc 300

catgagttca agaaggcaa agatgagctg tcggagcagg atgaaatgtt 350

cagaggccgg acagcagtgt ttgctgatca agtgatagtt ggcaatgcct 400

ctttgcggct gaaaaacgtg caactcacag atgctggcac ctacaaatgt 450

tatatcatca cttctaaagg caaggggaat gctaaccttg agtataaaac 500

tggagccttc agcatgccgg aagtgaatgt ggactataat gccagctcag 550

agaccttgcg gtgtgaggct ccccgatggt tcccccagcc cacagtggtc 600

tgggcatccc aagttgacca gggagccaac ttctcggaag tctccaatac 650

cagctttgag ctgaactctg agaatgtgac catgaaggtt gtgtctgtgc 700

tctacaatgt tacgatcaac aacacatact cctgtatgat tgaaaatgac 750

attgccaaag caacaggga tatcaaagtg acagaatcgg agatcaaaag 800

gcggagtcac ctacagctgc taaactcaaa ggcttctctg tgtgtctctt 850

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ttctgggagg aaatgaattc atatctagaa gtctggagtg agcaaacaag 1050
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259

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agcaagaaac aaaaagaagc caaaagcaga aggctccaat atgaacaaga 1100

taaatctatc ttcaaagaca tattagaagt tgggaaaata attcatgtga 1150

actagacaag tgtgttaaga gtgataagta aaatgcacgt ggagacaagt 1200

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tgtaatgttg ctctgaggaa gcccctggaa agtctatccc aacatatcca 1350

catcttatat tccacaaatt aagctgtagt atgtacccta agacgctgct 1400

aattgactgc cacttcgcaa ctcaggggcg gctgcatttt agtaatgggt 1450

caaatgattc acttttttatg atgcttccaa aggtgccttg gcttctcttc 1500

ccaactgaca aatgccaaag ttgagaaaaa tgatcataat tttagcataa 1550

acagagcagt cggggacacc gattttataa ataaactgag caccttcttt 1600

ttaaacaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1650

aaaaaaaa 1658
```

<210> 291
<211> 282
<212> PRT
<213> Homo sapiens

```
<400> 291
Met Ala Ser Leu Gly Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile
1               5                   10                  15

Ile Ile Ile Leu Ala Gly Ala Ile Ala Leu Ile Ile Gly Phe Gly
                20                  25                  30

Ile Ser Gly Arg His Ser Ile Thr Val Thr Thr Val Ala Ser Ala
                35                  40                  45

Gly Asn Ile Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro
                50                  55                  60

Asp Ile Lys Leu Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly
                65                  70                  75

Val Leu Gly Leu Val His Glu Phe Lys Glu Gly Lys Asp Glu Leu
                80                  85                  90

Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr Ala Val Phe Ala
                95                  100                 105

Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu Lys Asn Val
                110                 115                 120

Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile Thr Ser
                125                 130                 135

Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala Phe
                140                 145                 150

Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr
```

```
                155                   160                   165
  Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val
                    170                   175                   180
  Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser
                    185                   190                   195
  Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val
                    200                   205                   210
  Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser Cys
                    215                   220                   225
  Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val
                    230                   235                   240
  Thr Glu Ser Glu Ile Lys Arg Arg Ser His Leu Gln Leu Leu Asn
                    245                   250                   255
  Ser Lys Ala Ser Leu Cys Val Ser Ser Phe Phe Ala Ile Ser Trp
                    260                   265                   270
  Ala Leu Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys
                    275                   280
```

<210> 292
<211> 1484
<212> DNA
<213> Homo sapiens

<400> 292
```
 gaatttgtag aagacagcgg cgttgccatg gcggcgtctc tggggcaggt 50

 gttggctctg gtgctggtgg ccgctctgtg gggtggcacg cagccgctgc 100

 tgaagcgggc ctccgccggc ctgcagcggg ttcatgagcc gacctgggcc 150

 cagcagttgc tacaggagat gaagaccctc ttcttgaata ctgagtacct 200

 gatgcccttt ctcctcaacc agtgtggatc ccttctctat tacctcacct 250

 tggcatcgac agatctgacc ctggctgtgc ccatctgtaa ctctctggct 300

 atcatcttca cactgattgt tgggaaggcc cttggagaag atattggtgg 350

 aaaacgtaag ttagactact gcgagtgcgg gacgcagctc tgtggatctc 400

 gacatacctg tgttagttcc ttcccagaac ccatctcccc agagtgggtg 450

 aggacacggc ctttttcccat cctgcccttt cctctgcagc tgttttgctt 500

 ccttgtggcc atcagagttc ccttcccctg gacagtctgg agaaagacag 550

 aggctggggt ttgggattga agaccagacc ccatctgagc ccttcctcca 600

 gccctgtacc agctcctact ggcatggctg agctcagacc ctcctgattt 650

 ctgcctatta tcccaggagc agttgctggc atggtgctca ccgtgatagg 700

 aatttcactc tgcatcacaa gctcagtgag taagacccag gggcaacagt 750

 ctacccttttg agtgggccga acccacttcc agctctgctg cctccaggaa 800
```

gcccctgggc catgaagtgc tggcagtgag cggatggacc tagcacttcc 850

cctctctggc cttagcttcc tcctctctta tggggataac agctacctca 900

tggatcacaa taagagaaca agagtgaaag agttttgtaa ccttcaagtg 950

ctgttcagct gcggggattt agcacaggag actctacgct caccctcagc 1000

aacctttctg ccccagcagc tctcttcctg ctaacatctc aggctcccag 1050

cccagccacc attactgtgg cctgatctgg actatcatgg tggcaggttc 1100

catggactgc agaactccag ctgcatggaa agggccagct gcagactttg 1150

agccagaaat gcaaacggga ggcctctggg actcagtcag agcgctttgg 1200

ctgaatgagg ggtggaaccg agggaagaag gtgcgtcgga gtggcagatg 1250

caggaaatga gctgtctatt agccttgcct gccccaccca tgaggtaggc 1300

agaaatcctc actgccagcc cctcttaaac aggtagagag ctgtgagccc 1350

cagccccacc tgactccagc acacctggcg agtagtagct gtcaataaat 1400

ctatgtaaac agacaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1450

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 1484

<210> 293
<211> 180
<212> PRT
<213> Homo sapiens

<400> 293
```
Met Ala Ala Ser Leu Gly Gln Val Leu Ala Leu Val Leu Val Ala
 1               5                  10                  15

Ala Leu Trp Gly Gly Thr Gln Pro Leu Leu Lys Arg Ala Ser Ala
                20                  25                  30

Gly Leu Gln Arg Val His Glu Pro Thr Trp Ala Gln Gln Leu Leu
                35                  40                  45

Gln Glu Met Lys Thr Leu Phe Leu Asn Thr Glu Tyr Leu Met Pro
                50                  55                  60

Phe Leu Leu Asn Gln Cys Gly Ser Leu Leu Tyr Tyr Leu Thr Leu
                65                  70                  75

Ala Ser Thr Asp Leu Thr Leu Ala Val Pro Ile Cys Asn Ser Leu
                80                  85                  90

Ala Ile Ile Phe Thr Leu Ile Val Gly Lys Ala Leu Gly Glu Asp
                95                  100                 105

Ile Gly Gly Lys Arg Lys Leu Asp Tyr Cys Glu Cys Gly Thr Gln
                110                 115                 120

Leu Cys Gly Ser Arg His Thr Cys Val Ser Ser Phe Pro Glu Pro
                125                 130                 135

Ile Ser Pro Glu Trp Val Arg Thr Arg Pro Phe Pro Ile Leu Pro
                140                 145                 150
```

262

```
Phe Pro Leu Gln Leu Phe Cys Phe Leu Val Ala Ile Arg Val Pro
              155                 160                 165

Phe Pro Trp Thr Val Trp Arg Lys Thr Glu Ala Gly Val Trp Asp
              170                 175                 180
```

<210> 294
<211> 1164
<212> DNA
<213> Homo sapiens

<400> 294
```
cttctgtagg acagtcacca ggccagatcc agaagcctct ctaggctcca 50

gctttctctg tggaagatga cagcaattat agcaggaccc tgccaggctg 100

tcgaaaagat tccgcaataa aactttgcca gtgggaagta cctagtgaaa 150

cggcctaaga tgccacttct tctcatgtcc caggcttgag gccctgtggt 200

ccccatcctt gggagaagtc agctccagca ccatgaaggg catcctcgtt 250

gctggtatca ctgcagtgct tgttgcagct gtagaatctc tgagctgcgt 300

gcagtgtaat tcatgggaaa aatcctgtgt caacagcatt gcctctgaat 350

gtccctcaca tgccaacacc agctgtatca gctcctcagc cagctcctct 400

ctagagacac cagtcagatt ataccagaat atgttctgct cagcggagaa 450

ctgcagtgag gagacacaca ttacagcctt cactgtccac gtgtctgctg 500

aagaacactt tcattttgta agccagtgct gccaaggaaa ggaatgcagc 550

aacaccagcg atgccctgga ccctcccctg aagaacgtgt ccagcaacgc 600

agagtgccct gcttgttatg aatctaatgg aacttcctgt cgtgggaagc 650

cctggaaatg ctatgaagaa gaacagtgtg tctttctagt tgcagaactt 700

aagaatgaca ttgagtctaa gagtctcgtg ctgaaaggct gttccaacgt 750

cagtaacgcc acctgtcagt tcctgtctgg tgaaaacaag actcttggag 800

gagtcatctt tcgaaagttt gagtgtgcaa atgtaaacag cttaaccccc 850

acgtctgcac caaccacttc ccacaacgtg ggctccaaag cttccctcta 900

cctcttggcc cttgccagcc tccttcttcg gggactgctg ccctgaggtc 950

ctggggctgc actttgccca gcaccccatt tctgcttctc tgaggtccag 1000

agcacccccct gcggtgctga caccctcttt ccctgctctg ccccgtttaa 1050

ctgcccagta agtgggagtc acaggtctcc aggcaatgcc gacagctgcc 1100

ttgttcttca ttattaaagc actggttcat tcactgccaa aaaaaaaaaa 1150

aaaaaaaaaa aaaa 1164
```

<210> 295
<211> 237
<212> PRT
```
                           263
```

<213> Homo sapiens

<400> 295
```
Met Lys Gly Ile Leu Val Ala Gly Ile Thr Ala Val Leu Val Ala
  1               5                  10                  15

Ala Val Glu Ser Leu Ser Cys Val Gln Cys Asn Ser Trp Glu Lys
               20                  25                  30

Ser Cys Val Asn Ser Ile Ala Ser Glu Cys Pro Ser His Ala Asn
               35                  40                  45

Thr Ser Cys Ile Ser Ser Ser Ala Ser Ser Ser Leu Glu Thr Pro
               50                  55                  60

Val Arg Leu Tyr Gln Asn Met Phe Cys Ser Ala Glu Asn Cys Ser
               65                  70                  75

Glu Glu Thr His Ile Thr Ala Phe Thr Val His Val Ser Ala Glu
               80                  85                  90

Glu His Phe His Phe Val Ser Gln Cys Cys Gln Gly Lys Glu Cys
               95                 100                 105

Ser Asn Thr Ser Asp Ala Leu Asp Pro Pro Leu Lys Asn Val Ser
              110                 115                 120

Ser Asn Ala Glu Cys Pro Ala Cys Tyr Glu Ser Asn Gly Thr Ser
              125                 130                 135

Cys Arg Gly Lys Pro Trp Lys Cys Tyr Glu Glu Glu Gln Cys Val
              140                 145                 150

Phe Leu Val Ala Glu Leu Lys Asn Asp Ile Glu Ser Lys Ser Leu
              155                 160                 165

Val Leu Lys Gly Cys Ser Asn Val Ser Asn Ala Thr Cys Gln Phe
              170                 175                 180

Leu Ser Gly Glu Asn Lys Thr Leu Gly Gly Val Ile Phe Arg Lys
              185                 190                 195

Phe Glu Cys Ala Asn Val Asn Ser Leu Thr Pro Thr Ser Ala Pro
              200                 205                 210

Thr Thr Ser His Asn Val Gly Ser Lys Ala Ser Leu Tyr Leu Leu
              215                 220                 225

Ala Leu Ala Ser Leu Leu Leu Arg Gly Leu Leu Pro
              230                 235
```

<210> 296
<211> 1245
<212> DNA
<213> Homo sapiens

<400> 296
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ggcctcggtt caaacgaccc ggtgggtcta cagcggaagg gagggagcga 50

aggtaggagg cagggcttgc ctcactggcc accctcccaa ccccaagagc 100

ccagccccat ggtccccgcc gccggcgcgc tgctgtgggt cctgctgctg 150
```

264

```
aatctgggtc cccgggcggc gggggcccaa ggcctgaccc agactccgac 200

cgaaatgcag cgggtcagtt tacgctttgg gggccccatg acccgcagct 250

accggagcac cgcccggact ggtcttcccc ggaagacaag gataatccta 300

gaggacgaga atgatgccat ggccgacgcc gaccgcctgg ctggaccagc 350

ggctgccgag ctcttggccg ccacggtgtc caccggcttt agccggtcgt 400

ccgccattaa cgaggaggat gggtcttcag aagaggggt tgtgattaat 450

gccggaaagg atagcaccag cagagagctt cccagtgcga ctcccaatac 500

agcggggagt tccagcacga ggtttatagc caatagtcag gagcctgaaa 550

tcaggctgac ttcaagcctg ccgcgctccc ccgggaggtc tactgaggac 600

ctgccaggct cgcaggccac cctgagccag tggtccacac ctgggtctac 650

cccgagccgg tggccgtcac cctcacccac agccatgcca tctcctgagg 700

atctgcggct ggtgctgatg ccctgggggcc cgtggcactg ccactgcaag 750

tcgggcacca tgagccggag ccggtctggg aagctgcacg gcctttccgg 800

gcgccttcga gttggggcgc tgagccagct ccgcacggag cacaagcctt 850

gcacctatca acaatgtccc tgcaaccgac ttcgggaaga gtgcccctg 900

gacacaagtc tctgtactga caccaactgt gcctctcaga gcaccaccag 950

taccaggacc accactaccc ccttccccac catccacctc agaagcagtc 1000

ccagcctgcc acccgccagc ccctgcccag ccctggcttt ttggaaacgg 1050

gtcaggattg gcctggagga tatttggaat agcctctctt cagtgttcac 1100

agagatgcaa ccaatagaca gaaaccagag gtaatggcca cttcatccac 1150

atgaggagat gtcagtatct caacctctct tgcccttca atcctagcac 1200

ccactagata tttttagtac agaaaaacaa aactggaaaa cacaa 1245
```

<210> 297
<211> 341
<212> PRT
<213> Homo sapiens

<400> 297

```
Met Val Pro Ala Ala Gly Ala Leu Leu Trp Val Leu Leu Leu Asn
1               5                   10                  15

Leu Gly Pro Arg Ala Ala Gly Ala Gln Gly Leu Thr Gln Thr Pro
                20                  25                  30

Thr Glu Met Gln Arg Val Ser Leu Arg Phe Gly Gly Pro Met Thr
                35                  40                  45

Arg Ser Tyr Arg Ser Thr Ala Arg Thr Gly Leu Pro Arg Lys Thr
                50                  55                  60

Arg Ile Ile Leu Glu Asp Glu Asn Asp Ala Met Ala Asp Ala Asp
```

Arg Leu Ala Gly Pro Ala Ala Ala Glu Leu Leu Ala Ala Thr Val
                    80   85   90

Ser Thr Gly Phe Ser Arg Ser Ser Ala Ile Asn Glu Glu Asp Gly
                    95   100   105

Ser Ser Glu Glu Gly Val Val Ile Asn Ala Gly Lys Asp Ser Thr
                   110   115   120

Ser Arg Glu Leu Pro Ser Ala Thr Pro Asn Thr Ala Gly Ser Ser
                   125   130   135

Ser Thr Arg Phe Ile Ala Asn Ser Gln Glu Pro Glu Ile Arg Leu
                   140   145   150

Thr Ser Ser Leu Pro Arg Ser Pro Gly Arg Ser Thr Glu Asp Leu
                   155   160   165

Pro Gly Ser Gln Ala Thr Leu Ser Gln Trp Ser Thr Pro Gly Ser
                   170   175   180

Thr Pro Ser Arg Trp Pro Ser Pro Ser Pro Thr Ala Met Pro Ser
                   185   190   195

Pro Glu Asp Leu Arg Leu Val Leu Met Pro Trp Gly Pro Trp His
                   200   205   210

Cys His Cys Lys Ser Gly Thr Met Ser Arg Ser Arg Ser Gly Lys
                   215   220   225

Leu His Gly Leu Ser Gly Arg Leu Arg Val Gly Ala Leu Ser Gln
                   230   .235   240

Leu Arg Thr Glu His Lys Pro Cys Thr Tyr Gln Gln Cys Pro Cys
                   245   250   255

Asn Arg Leu Arg Glu Glu Cys Pro Leu Asp Thr Ser Leu Cys Thr
                   260   265   270

Asp Thr Asn Cys Ala Ser Gln Ser Thr Thr Ser Thr Arg Thr Thr
                   275   280   285

Thr Thr Pro Phe Pro Thr Ile His Leu Arg Ser Ser Pro Ser Leu
                   290   295   300

Pro Pro Ala Ser Pro Cys Pro Ala Leu Ala Phe Trp Lys Arg Val
                   305   310   315

Arg Ile Gly Leu Glu Asp Ile Trp Asn Ser Leu Ser Ser Val Phe
                   320   325   330

Thr Glu Met Gln Pro Ile Asp Arg Asn Gln Arg
                   335   340

<210> 298
<211> 2692
<212> DNA
<213> Homo sapiens

<400> 298
 cccgggtcga cccacgcgtc cggggagaaa ggatggccgg cctggcggcg 50

```
cggttggtcc tgctagctgg ggcagcggcg ctggcgagcg gctcccaggg 100

cgaccgtgag ccggtgtacc gcgactgcgt actgcagtgc gaagagcaga 150

actgctctgg gggcgctctg aatcacttcc gctcccgcca gccaatctac 200

atgagtctag caggctggac ctgtcgggac gactgtaagt atgagtgtat 250

gtgggtcacc gttgggctct acctccagga aggtcacaaa gtgcctcagt 300

tccatggcaa gtggcccttc tcccggttcc tgttctttca agagccggca 350

tcggccgtgg cctcgtttct caatggcctg gccagcctgg tgatgctctg 400

ccgctaccgc accttcgtgc cagcctcctc ccccatgtac cacacctgtg 450

tggccttcgc ctgggtgtcc ctcaatgcat ggttctggtc cacagtcttc 500

cacaccaggg acactgacct cacagagaaa atggactact tctgtgcctc 550

cactgtcatc ctacactcaa tctacctgtg ctgcgtcagg accgtggggc 600

tgcagcaccc agctgtggtc agtgccttcc gggctctcct gctgctcatg 650

ctgaccgtgc acgtctccta cctgagcctc atccgcttcg actatggcta 700

caacctggtg gccaacgtgg ctattggcct ggtcaacgtg gtgtggtggc 750

tggcctggtg cctgtggaac cagcggcggc tgcctcacgt gcgcaagtgc 800

gtggtggtgg tcttgctgct gcaggggctg tccctgctcg agctgcttga 850

cttcccaccg ctcttctggg tcctggatgc ccatgccatc tggcacatca 900

gcaccatccc tgtccacgtc ctctttttca gctttctgga agatgacagc 950

ctgtacctgc tgaaggaatc agaggacaag ttcaagctgg actgaagacc 1000

ttggagcgag tctgccccag tggggatcct gcccccgccc tgctggcctc 1050

ccttctcccc tcaacccttg agatgatttt ctcttttcaa cttcttgaac 1100

ttggacatga aggatgtggg cccagaatca tgtggccagc ccaccccctg 1150

ttggccctca ccagccttgg agtctgttct agggaaggcc tcccagcatc 1200

tgggactcga gagtgggcag cccctctacc tcctggagct gaactggggt 1250

ggaactgagt gtgttcttag ctctaccggg aggacagctg cctgtttcct 1300

ccccaccagc ctcctcccca catccccagc tgcctggctg ggtcctgaag 1350

ccctctgtct acctgggaga ccagggacca caggccttag ggatacaggg 1400

ggtccccttc tgttaccacc ccccaccctc ctccaggaca ccactaggtg 1450

gtgctggatg cttgttcttt ggccagccaa ggttcacggc gattctcccc 1500

atggatctt gagggaccaa gctgctggga ttgggaagga gtttcaccct 1550

gaccgttgcc ctagccaggt tcccaggagg cctcaccata ctccctttca 1600

gggccagggc tccagcaagc ccagggcaag gatcctgtgc tgctgtctgg 1650
```

267

```
ttgagagcct gccaccgtgt gtcgggagtg tgggccaggc tgagtgcata 1700

ggtgacaggg ccgtgagcat gggcctgggt gtgtgtgagc tcaggcctag 1750

gtgcgcagtg tggagacggg tgttgtcggg gaagaggtgt ggcttcaaag 1800

tgtgtgtgtg caggggtgg gtgtgttagc gtgggttagg ggaacgtgtg 1850

tgcgcgtgct ggtgggcatg tgagatgagt gactgccggt gaatgtgtcc 1900

acagttgaga ggttggagca ggatgaggga atcctgtcac catcaataat 1950

cacttgtgga gcgccagctc tgcccaagac gccacctggg cggacagcca 2000

ggagctctcc atggccaggc tgcctgtgtg catgttccct gtctggtgcc 2050

cctttgcccg cctcctgcaa acctcacagg gtccccacac aacagtgccc 2100

tccagaagca gcccctcgga ggcagaggaa ggaaaatggg gatggctggg 2150

gctctctcca tcctcctttt ctccttgcct tcgcatggct ggccttcccc 2200

tccaaaacct ccattcccct gctgccagcc cctttgccat agcctgattt 2250

tggggaggag gaagggggcga tttgagggag aagggggagaa agcttatggc 2300

tgggtctggt ttcttccctt cccagagggt cttactgttc cagggtggcc 2350

ccagggcagg caggggccac actatgcctg tgccctggta aaggtgaccc 2400

ctgccattta ccagcagccc tggcatgttc ctgccccaca ggaatagaat 2450

ggagggagct ccagaaactt tccatcccaa aggcagtctc cgtggttgaa 2500

gcagactgga tttttgctct gcccctgacc ccttgtccct ctttgaggga 2550

ggggagctat gctaggactc caacctcagg gactcgggtg gcctgcgcta 2600

gcttcttttg atactgaaaa cttttaaggt gggagggtgg caagggatgt 2650

gcttaataaa tcaattccaa gcctcaaaaa aaaaaaaaaa aa 2692
```

<210> 299
<211> 320
<212> PRT
<213> Homo sapiens

<400> 299

```
Met Ala Gly Leu Ala Ala Arg Leu Val Leu Leu Ala Gly Ala Ala
 1               5                  10                  15

Ala Leu Ala Ser Gly Ser Gln Gly Asp Arg Glu Pro Val Tyr Arg
                20                  25                  30

Asp Cys Val Leu Gln Cys Glu Glu Gln Asn Cys Ser Gly Gly Ala
                35                  40                  45

Leu Asn His Phe Arg Ser Arg Gln Pro Ile Tyr Met Ser Leu Ala
                50                  55                  60

Gly Trp Thr Cys Arg Asp Asp Cys Lys Tyr Glu Cys Met Trp Val
                65                  70                  75
```

268

```
Thr Val Gly Leu Tyr Leu Gln Glu Gly His Lys Val Pro Gln Phe
                80                  85                  90

His Gly Lys Trp Pro Phe Ser Arg Phe Leu Phe Phe Gln Glu Pro
                95                 100                 105

Ala Ser Ala Val Ala Ser Phe Leu Asn Gly Leu Ala Ser Leu Val
               110                 115                 120

Met Leu Cys Arg Tyr Arg Thr Phe Val Pro Ala Ser Ser Pro Met
               125                 130                 135

Tyr His Thr Cys Val Ala Phe Ala Trp Val Ser Leu Asn Ala Trp
               140                 145                 150

Phe Trp Ser Thr Val Phe His Thr Arg Asp Thr Asp Leu Thr Glu
               155                 160                 165

Lys Met Asp Tyr Phe Cys Ala Ser Thr Val Ile Leu His Ser Ile
               170                 175                 180

Tyr Leu Cys Cys Val Arg Thr Val Gly Leu Gln His Pro Ala Val
               185                 190                 195

Val Ser Ala Phe Arg Ala Leu Leu Leu Leu Met Leu Thr Val His
               200                 205                 210

Val Ser Tyr Leu Ser Leu Ile Arg Phe Asp Tyr Gly Tyr Asn Leu
               215                 220                 225

Val Ala Asn Val Ala Ile Gly Leu Val Asn Val Val Trp Trp Leu
               230                 235                 240

Ala Trp Cys Leu Trp Asn Gln Arg Arg Leu Pro His Val Arg Lys
               245                 250                 255

Cys Val Val Val Val Leu Leu Leu Gln Gly Leu Ser Leu Leu Glu
               260                 265                 270

Leu Leu Asp Phe Pro Pro Leu Phe Trp Val Leu Asp Ala His Ala
               275                 280                 285

Ile Trp His Ile Ser Thr Ile Pro Val His Val Leu Phe Phe Ser
               290                 295                 300

Phe Leu Glu Asp Asp Ser Leu Tyr Leu Leu Lys Glu Ser Glu Asp
               305                 310                 315

Lys Phe Lys Leu Asp
               320
```

<210> 300
<211> 1674
<212> DNA
<213> Homo sapiens

```
<400> 300
 ggccgcctgg aattgtggga gttgtgtctg ccactcggct gccggaggcc 50

 gaaggtccgt gactatggct ccccagagcc tgccttcatc taggatggct 100

 cctctgggca tgctgcttgg gctgctgatg gccgcctgct tcaccttctg 150
```

```
cctcagtcat cagaacctga aggagtttgc cctgaccaac ccagagaaga 200

gcagcaccaa agaaacggag agaaaagaaa ccaaagccga ggaggagctg 250

gatgccgaag tcctggaggt gttccacccg acgcatgagt ggcaggccct 300

tcagccaggg caggctgtcc ctgcaggatc ccacgtacgg ctgaatcttc 350

agactgggga aagagaggca aaactccaat atgaggacaa gttccgaaat 400

aatttgaaag gcaaaaggct ggatatcaac accaacacct acacatctca 450

ggatctcaag agtgcactgg caaaattcaa ggaggggggca gagatggaga 500

gttcaaagga agacaaggca aggcaggctg aggtaaagcg gctcttccgc 550

cccattgagg aactgaagaa agactttgat gagctgaatg ttgtcattga 600

gactgacatg cagatcatgg tacggctgat caacaagttc aatagttcca 650

gctccagttt ggaagagaag attgctgcgc tctttgatct tgaatattat 700

gtccatcaga tggacaatgc gcaggacctg ctttcctttg gtggtcttca 750

agtggtgatc aatgggctga acagcacaga gcccctcgtg aaggagtatg 800

ctgcgtttgt gctgggcgct gccttttcca gcaaccccaa ggtccaggtg 850

gaggccatcg aaggggggagc cctgcagaag ctgctggtca tcctggccac 900

ggagcagccg ctcactgcaa agaagaaggt cctgtttgca ctgtgctccc 950

tgctgcgcca cttcccctat gcccagcggc agttcctgaa gctcgggggg 1000

ctgcaggtcc tgaggaccct ggtgcaggag aagggcacgg aggtgctcgc 1050

cgtgcgcgtg gtcacactgc tctacgacct ggtcacggag aagatgttcg 1100

ccgaggagga ggctgagctg acccaggaga tgtccccaga gaagctgcag 1150

cagtatcgcc aggtacacct cctgccaggc ctgtgggaac agggctggtg 1200

cgagatcacg gcccacctcc tggcgctgcc cgagcatgat gcccgtgaga 1250

aggtgctgca gacactgggc gtcctcctga ccacctgccg ggaccgctac 1300

cgtcaggacc cccagctcgg caggacactg gccagcctgc aggctgagta 1350

ccaggtgctg gccagcctgg agctgcagga tggtgaggac gagggctact 1400

tccaggagct gctgggctct gtcaacagct tgctgaagga gctgagatga 1450

ggccccacac caggactgga ctgggatgcc gctagtgagg ctgagggggtg 1500

ccagcgtggg tgggcttctc aggcaggagg acatcttggc agtgctggct 1550

tggccattaa atggaaacct gaaggccaaa aaaaaaaaaa aaaaaaaaaa 1600

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1650

aaaaaaaaaa aaaaaaaaaa aaaa 1674

<210> 301
```

<211> 461
<212> PRT
<213> Homo sapiens

<400> 301

```
Met Ala Pro Gln Ser Leu Pro Ser Ser Arg Met Ala Pro Leu Gly
 1               5                  10                  15

Met Leu Leu Gly Leu Leu Met Ala Ala Cys Phe Thr Phe Cys Leu
                20                  25                  30

Ser His Gln Asn Leu Lys Glu Phe Ala Leu Thr Asn Pro Glu Lys
                35                  40                  45

Ser Ser Thr Lys Glu Thr Glu Arg Lys Glu Thr Lys Ala Glu Glu
                50                  55                  60

Glu Leu Asp Ala Glu Val Leu Glu Val Phe His Pro Thr His Glu
                65                  70                  75

Trp Gln Ala Leu Gln Pro Gly Gln Ala Val Pro Ala Gly Ser His
                80                  85                  90

Val Arg Leu Asn Leu Gln Thr Gly Glu Arg Glu Ala Lys Leu Gln
                95                 100                 105

Tyr Glu Asp Lys Phe Arg Asn Asn Leu Lys Gly Lys Arg Leu Asp
               110                 115                 120

Ile Asn Thr Asn Thr Tyr Thr Ser Gln Asp Leu Lys Ser Ala Leu
               125                 130                 135

Ala Lys Phe Lys Glu Gly Ala Glu Met Glu Ser Ser Lys Glu Asp
               140                 145                 150

Lys Ala Arg Gln Ala Glu Val Lys Arg Leu Phe Arg Pro Ile Glu
               155                 160                 165

Glu Leu Lys Lys Asp Phe Asp Glu Leu Asn Val Val Ile Glu Thr
               170                 175                 180

Asp Met Gln Ile Met Val Arg Leu Ile Asn Lys Phe Asn Ser Ser
               185                 190                 195

Ser Ser Ser Leu Glu Glu Lys Ile Ala Ala Leu Phe Asp Leu Glu
               200                 205                 210

Tyr Tyr Val His Gln Met Asp Asn Ala Gln Asp Leu Leu Ser Phe
               215                 220                 225

Gly Gly Leu Gln Val Val Ile Asn Gly Leu Asn Ser Thr Glu Pro
               230                 235                 240

Leu Val Lys Glu Tyr Ala Ala Phe Val Leu Gly Ala Ala Phe Ser
               245                 250                 255

Ser Asn Pro Lys Val Gln Val Glu Ala Ile Glu Gly Gly Ala Leu
               260                 265                 270

Gln Lys Leu Leu Val Ile Leu Ala Thr Glu Gln Pro Leu Thr Ala
               275                 280                 285

Lys Lys Lys Val Leu Phe Ala Leu Cys Ser Leu Leu Arg His Phe
```

Pro Tyr Ala Gln Arg Gln Phe Leu Lys Leu Gly Gly Leu Gln Val
            305   310   315

Leu Arg Thr Leu Val Gln Glu Lys Gly Thr Glu Val Leu Ala Val
            320   325   330

Arg Val Val Thr Leu Leu Tyr Asp Leu Val Thr Glu Lys Met Phe
            335   340   345

Ala Glu Glu Glu Ala Glu Leu Thr Gln Glu Met Ser Pro Glu Lys
            350   355   360

Leu Gln Gln Tyr Arg Gln Val His Leu Leu Pro Gly Leu Trp Glu
            365   370   375

Gln Gly Trp Cys Glu Ile Thr Ala His Leu Leu Ala Leu Pro Glu
            380   385   390

His Asp Ala Arg Glu Lys Val Leu Gln Thr Leu Gly Val Leu Leu
            395   400   405

Thr Thr Cys Arg Asp Arg Tyr Arg Gln Asp Pro Gln Leu Gly Arg
            410   415   420

Thr Leu Ala Ser Leu Gln Ala Glu Tyr Gln Val Leu Ala Ser Leu
            425   430   435

Glu Leu Gln Asp Gly Glu Asp Glu Gly Tyr Phe Gln Glu Leu Leu
            440   445   450

Gly Ser Val Asn Ser Leu Leu Lys Glu Leu Arg
            455   460

<210> 302
<211> 2136
<212> DNA
<213> Homo sapiens

<400> 302
 ttcggcttcc gtagaggaag tggcgcggac cttcatttgg ggtttcggtt 50

 ccccccttc ccctccccg gggtctgggg gtgacattgc accgcgcccc 100

 tcgtggggtc gcgttgccac cccacgcgga ctccccagct ggcgcgcccc 150

 tcccatttgc ctgtcctggt caggccccca ccccccttcc cacctgacca 200

 gccatggggg ctgcggtgtt tttcggctgc actttcgtcg cgttcggccc 250

 ggccttcgcg cttttcttga tcactgtggc tggggacccg cttcgcgtta 300

 tcatcctggt cgcagggggca tttttctggc tggtctccct gctcctggcc 350

 tctgtggtct ggttcatctt ggtccatgtg accgaccggt cagatgcccg 400

 gctccagtac ggcctcctga tttttggtgc tgctgtctct gtccttctac 450

 aggaggtgtt ccgctttgcc tactacaagc tgcttaagaa ggcagatgaa 500

 gggttagcat cgctgagtga ggacggaaga tcacccatct ccatccgcca 550

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gatggcctat gtttctggtc tctccttcgg tatcatcagt ggtgtcttct 600

ctgttatcaa tattttggct gatgcacttg ggccaggtgt ggttgggatc 650

catggagact caccctatta cttcctgact tcagcctttc tgacagcagc 700

cattatcctg ctccatacct tttggggagt tgtgttcttt gatgcctgtg 750

agaggagacg gtactgggct ttgggcctgg tggttgggag tcacctactg 800

acatcgggac tgacattcct gaacccctgg tatgaggcca gcctgctgcc 850

catctatgca gtcactgttt ccatggggct ctgggccttc atcacagctg 900

gagggtccct ccgaagtatt cagcgcagcc tcttgtgtaa ggactgacta 950

cctggactga tcgcctgaca gatcccacct gcctgtccac tgcccatgac 1000

tgagcccagc cccagcccgg gtccattgcc cacattctct gtctccttct 1050

cgtcggtcta ccccactacc tccaggggttt tgctttgtcc ttttgtgacc 1100

gttagtctct aagctttacc aggagcagcc tgggttcagc cagtcagtga 1150

ctggtgggtt tgaatctgca cttatcccca ccacctgggg acccccttgt 1200

tgtgtccagg actcccctg tgtcagtgct ctgctctcac cctgcccaag 1250

actcacctcc cttcccctct gcaggccgac ggcaggagga cagtcgggtg 1300

atggtgtatt ctgccctgcg catcccaccc gaggactgag ggaacctagg 1350

ggggaccct gggcctgggg tgccctcctg atgtcctcgc cctgtatttc 1400

tccatctcca gttctggaca gtgcaggttg ccaagaaaag ggacctagtt 1450

tagccattgc cctggagatg aaattaatgg aggctcaagg atagatgagc 1500

tctgagtttc tcagtactcc ctcaagactg gacatcttgg tcttttttctc 1550

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ctcatttcgg tccctttctc cttggtccca gaccttgggg gaaaggaagg 1750

aagtgcatgt ttgggaactg gcattactgg aactaatggt tttaacctcc 1800

ttaaccacca gcatccctcc tctccccaag gtgaagtgga gggtgctgtg 1850

gtgagctggc cactccagag ctgcagtgcc actggaggag tcagactacc 1900

atgacatcgt agggaaggag gggagatttt tttgtagttt ttaattgggg 1950

tgtgggaggg gcggggaggt tttctataaa ctgtatcatt ttctgctgag 2000

ggtggagtgt cccatccttt taatcaaggt gattgtgatt ttgactaata 2050

aaaaagaatt tgtaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2100

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 2136
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273

<210> 303
<211> 247
<212> PRT
<213> Homo sapiens

<400> 303

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Met Gly Ala Ala Val Phe Phe Gly Cys Thr Phe Val Ala Phe Gly
 1               5                  10                  15

Pro Ala Phe Ala Leu Phe Leu Ile Thr Val Ala Gly Asp Pro Leu
                20                  25                  30

Arg Val Ile Ile Leu Val Ala Gly Ala Phe Phe Trp Leu Val Ser
                35                  40                  45

Leu Leu Leu Ala Ser Val Val Trp Phe Ile Leu Val His Val Thr
                50                  55                  60

Asp Arg Ser Asp Ala Arg Leu Gln Tyr Gly Leu Leu Ile Phe Gly
                65                  70                  75

Ala Ala Val Ser Val Leu Leu Gln Glu Val Phe Arg Phe Ala Tyr
                80                  85                  90

Tyr Lys Leu Leu Lys Lys Ala Asp Glu Gly Leu Ala Ser Leu Ser
                95                  100                 105

Glu Asp Gly Arg Ser Pro Ile Ser Ile Arg Gln Met Ala Tyr Val
                110                 115                 120

Ser Gly Leu Ser Phe Gly Ile Ile Ser Gly Val Phe Ser Val Ile
                125                 130                 135

Asn Ile Leu Ala Asp Ala Leu Gly Pro Gly Val Val Gly Ile His
                140                 145                 150

Gly Asp Ser Pro Tyr Tyr Phe Leu Thr Ser Ala Phe Leu Thr Ala
                155                 160                 165

Ala Ile Ile Leu Leu His Thr Phe Trp Gly Val Val Phe Phe Asp
                170                 175                 180

Ala Cys Glu Arg Arg Arg Tyr Trp Ala Leu Gly Leu Val Val Gly
                185                 190                 195

Ser His Leu Leu Thr Ser Gly Leu Thr Phe Leu Asn Pro Trp Tyr
                200                 205                 210

Glu Ala Ser Leu Leu Pro Ile Tyr Ala Val Thr Val Ser Met Gly
                215                 220                 225

Leu Trp Ala Phe Ile Thr Ala Gly Gly Ser Leu Arg Ser Ile Gln
                230                 235                 240

Arg Ser Leu Leu Cys Lys Asp
                245
```

<210> 304
<211> 240
<212> DNA
<213> Homo sapiens

<220>

<221> unsure
<222> 108, 123, 126, 154, 198, 206, 217
<223> unknown base

<400> 304
aagctggttt aaggaagcag aggagggtta gattcgttga gtgaggacgg 50

aagatcaacc catttccatt ccgccagatg gcctatgttt ctggtctctc 100

ccttcggnat catcagtggt gtnttntctg ttatcaatat tttggctgat 150

gcanttgggc caggtgtggt tgggatccat ggagactcac cctattantt 200

cctganttca gcctttntga cagcagccat tatcctgctc 240

<210> 305
<211> 378
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 58, 94, 132, 186, 191, 220, 240, 248, 280, 311, 332
<223> unknown base

<400> 305
gaccgaccgt tcagatgccc ggttccagta cggcttcctg atttttggtg 50

ctgctgtntc tgtccttcta caggaggtgt tccgctttgc ctantacaag 100

ctgcttaaga aggcagatga ggggttagca tngctgagtg aggacggaag 150

atcacccatt tccatccgcc agatggccta tgtttntggt ntttccttcg 200

gtatcatcag tggtgttttn tctgttatca atattttggn tgatgcantt 250

gggccaggtg tggttgggat ccatggagan tcaccctatt aattcctgaa 300

ttcagccttt ntgacagcag ccattatcct gntccatacc ttttggggag 350

ttgtgttttt tgatgcctgt gagaggag 378

<210> 306
<211> 655
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 1, 22, 129, 133, 184
<223> unknown base

<400> 306
ngttggagaa gtggcgcgga cnttcatttg gggtttcggt ttccccccctt 50

tccctttccc cggggtctgg ggtgacattg cacgggcccc tcgtggggtc 100

gcgttgccac cccacgcgga ctccccagnt ggngcgccct tcccatttgc 150

ctgtcctggt caggccccca cccccttcc cacntgacca gccatggggg 200

ctgcggtgtt tttcggctgc actttcgtcg cgttcggccc ggccttcgcg 250

275

```
ctttttcttga tcactgtggc tggggacccg cttcgcgtta tcatcctggt 300

cgcagggggca tttttctggc tggtctccct gctcctggcc tctgtggtct 350

ggttcatctt ggtccatgtg accgaccggt cagatgcccg gctccagtac 400

ggcctcctga tttttggtgc tgctgtctct gtccttctac aggaggtgtt 450

ccgctttgcc tactacaagc tgcttaagaa ggcagatgag gggttagcat 500

cgctgagtga ggacggaaga tcacccatct ccatccgcca gatggcctat 550

gtttctggtc tctccttcgg tatcatcagt ggtgtcttct ctgttatcaa 600

tattttggct gatgcacttg ggccaggtgt ggttgggatc catggagact 650

caccc 655
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<210> 307
<211> 650
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 52, 89, 128
<223> unknown base

<400> 307
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gtaaaagaaa gtggccggac cttcattggg gtttcggttc cccccttttcc 50

cnttccccgg ggtctggggg tgacattgca ccgcgcccnt cgtgggggtcg 100

cgttgccacc ccacgcggac tccccagntg gcgcgcccct cccatttgcc 150

tgtcctggtc aggcccccac ccccttccc acctgaccag ccatgggggc 200

tgcggtgttt ttcgggctgc actttcgtcg cgttcgggcc cggccttcgc 250

gctttttcttg atcactgtgg ctgggggaccc gcttcgcgtt atcatcctgg 300

tcgcagggggc attttttctgg ctggtctccc tgctcctggc ctctgtggtct 350

tggttcatct tggtccatgt gaccgaccgg tcagatgccc ggctccagta 400

cggcctcctg atttttggtg ctgctgtctc tgtccttcta caggaggtgt 450

tccgctttgc ctactacaag ctgcttaaga aggcagatga ggggttagca 500

tcgctgagtg aggacggaag atcacccatc tccatccgcc agatggccta 550

tgtttctggt ctctccttcg gtatcatcag tggtgtcttc tctgttatca 600

atattttggc tgatgcactt gggccaggtg tggttgggat ccatggagac 650
```

<210> 308
<211> 1570
<212> DNA
<213> Homo sapiens

<400> 308
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gccccaggga gcagtgggtg gttataactc aggcccggtg cccagagccc 50
```

276

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aggaggaggc agtggccagg aaggcacagg cctgagaagt ctgcggctga 100

gctgggagca aatcccccac cccctacctg ggggacaggg caagtgagac 150

ctggtgaggg tggctcagca ggcagggaag gagaggtgtc tgtgcgtcct 200

gcacccacat ctttctctgt cccctccttg ccctgtctgg aggctgctag 250

actcctatct tctgaattct atagtgcctg ggtctcagcg cagtgccgat 300

ggtggcccgt ccttgtggtt cctctctacc tggggaaata aggtgcagcg 350

gccatggcta cagcaagacc cccctggatg tgggtgctct gtgctctgat 400

cacagccttg cttctggggg tcacagagca tgttctcgcc aacaatgatg 450

tttcctgtga ccacccctct aacaccgtgc cctctgggag caaccaggac 500

ctgggagctg gggccgggga agacgcccgg tcggatgaca gcagcagccg 550

catcatcaat ggatccgact gcgatatgca cacccagccg tggcaggccg 600

cgctgttgct aaggcccaac cagctctact gcggggcggt gttggtgcat 650

ccacagtggc tgctcacggc cgcccactgc aggaagaaag ttttcagagt 700

ccgtctcggc cactactccc tgtcaccagt ttatgaatct gggcagcaga 750

tgttccaggg ggtcaaatcc atcccccacc ctggctactc ccaccctggc 800

cactctaacg acctcatgct catcaaactg aacagaagaa ttcgtcccac 850

taaagatgtc agacccatca acgtctcctc tcattgtccc tctgctggga 900

caaagtgctt ggtgtctggc tggggacaa ccaagagccc ccaagtgcac 950

ttccctaagg tcctccagtg cttgaatatc agcgtgctaa gtcagaaaag 1000

gtgcgaggat gcttacccga gacagataga tgacaccatg ttctgcgccg 1050

gtgacaaagc aggtagagac tcctgccagg gtgattctgg ggggcctgtg 1100

gtctgcaatg gctccctgca gggactcgtg tcctggggag attacccttg 1150

tgcccggccc aacagaccgg gtgtctacac gaacctctgc aagttcacca 1200

agtggatcca ggaaaccatc caggccaact cctgagtcat cccaggactc 1250

agcacaccgg catccccacc tgctgcaggg acagccctga cactcctttc 1300

agaccctcat tccttcccag agatgttgag aatgttcatc tctccagccc 1350

ctgacccat gtctcctgga ctcagggtct gcttcccca cattgggctg 1400

accgtgtctc tctagttgaa ccctgggaac aatttccaaa actgtccagg 1450

gcggggggttg cgtctcaatc tccctggggc actttcatcc tcaagctcag 1500

ggcccatccc ttctctgcag ctctgaccca aatttagtcc cagaaataaa 1550

ctgagaagtg gaaaaaaaaa 1570
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<210> 309
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<211> 293
<212> PRT
<213> Homo sapiens

<400> 309

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Met Ala Thr Ala Arg Pro Pro Trp Met Trp Val Leu Cys Ala Leu
 1               5                  10                      15

Ile Thr Ala Leu Leu Leu Gly Val Thr Glu His Val Leu Ala Asn
                20                  25                      30

Asn Asp Val Ser Cys Asp His Pro Ser Asn Thr Val Pro Ser Gly
                35                  40                      45

Ser Asn Gln Asp Leu Gly Ala Gly Ala Gly Glu Asp Ala Arg Ser
                50                  55                      60

Asp Asp Ser Ser Ser Arg Ile Ile Asn Gly Ser Asp Cys Asp Met
                65                  70                      75

His Thr Gln Pro Trp Gln Ala Ala Leu Leu Leu Arg Pro Asn Gln
                80                  85                      90

Leu Tyr Cys Gly Ala Val Leu Val His Pro Gln Trp Leu Leu Thr
                95                 100                     105

Ala Ala His Cys Arg Lys Lys Val Phe Arg Val Arg Leu Gly His
               110                 115                     120

Tyr Ser Leu Ser Pro Val Tyr Glu Ser Gly Gln Gln Met Phe Gln
               125                 130                     135

Gly Val Lys Ser Ile Pro His Pro Gly Tyr Ser His Pro Gly His
               140                 145                     150

Ser Asn Asp Leu Met Leu Ile Lys Leu Asn Arg Arg Ile Arg Pro
               155                 160                     165

Thr Lys Asp Val Arg Pro Ile Asn Val Ser Ser His Cys Pro Ser
               170                 175                     180

Ala Gly Thr Lys Cys Leu Val Ser Gly Trp Gly Thr Thr Lys Ser
               185                 190                     195

Pro Gln Val His Phe Pro Lys Val Leu Gln Cys Leu Asn Ile Ser
               200                 205                     210

Val Leu Ser Gln Lys Arg Cys Glu Asp Ala Tyr Pro Arg Gln Ile
               215                 220                     225

Asp Asp Thr Met Phe Cys Ala Gly Asp Lys Ala Gly Arg Asp Ser
               230                 235                     240

Cys Gln Gly Asp Ser Gly Gly Pro Val Val Cys Asn Gly Ser Leu
               245                 250                     255

Gln Gly Leu Val Ser Trp Gly Asp Tyr Pro Cys Ala Arg Pro Asn
               260                 265                     270

Arg Pro Gly Val Tyr Thr Asn Leu Cys Lys Phe Thr Lys Trp Ile
               275                 280                     285

Gln Glu Thr Ile Gln Ala Asn Ser
```

<210> 310
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 310
tcctgtgacc acccctctaa cacc 24

<210> 311
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 311
ctggaacatc tgctgcccag attc 24

<210> 312
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 312
gtcggatgac agcagcagcc gcatcatcaa tggatccgac tgcgatatgc 50

<210> 313
<211> 3010
<212> DNA
<213> Homo sapiens

<400> 313
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ccggccgcgc gacaagccgc agcggccgag ctgcggctac gtgctgtgca 100

ccgtgctgct ggccctggct gtgctgctgg ctgtagctgt caccggtgcc 150

gtgctcttcc tgaaccacgc ccacgcgccg ggcacggcgc ccccacctgt 200

cgtcagcact ggggctgcca gcgccaacag cgccctggtc actgtggaaa 250

gggcggacag ctcgcacctc agcatcctca ttgacccgcg ctgccccgac 300

ctcaccgaca gcttcgcacg cctggagagc gcccaggcct cggtgctgca 350

ggcgctgaca gagcaccagg cccagccacg gctggtgggc gaccaggagc 400

aggagctgct ggacacgctg gccgaccagc tgccccggct gctggcccga 450

gcctcagagc tgcagacgga gtgcatgggg ctgcggaagg ggcatggcac 500

gctgggccag ggcctcagcg ccctgcagag tgagcagggc cgcctcatcc 550

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agcttctctc tgagagccag ggccacatgg ctcacctggt gaactccgtc 600

agcgacatcc tggatgccct gcagagggac cgggggctgg gccggccccg 650

caacaaggcc gaccttcaga gagcgcctgc ccggggaacc cggccccggg 700

gctgtgccac tggctcccgg ccccgagact gtctggacgt cctcctaagc 750

ggacagcagg acgatggcgt ctactctgtc tttcccaccc actacccggc 800

cggcttccag gtgtactgtg acatgcgcac ggacggcggc ggctggacgg 850

tgtttcagcg ccgggaggac ggctccgtga acttcttccg gggctgggac 900

gcgtaccgag acggctttgg caggctcacc ggggagcact ggctagggct 950

caagaggatc cacgccctga ccacacaggc tgcctacgag ctgcacgtgg 1000

acctggagga ctttgagaat ggcacggcct atgcccgcta cgggagcttc 1050

ggcgtgggct tgttctccgt ggaccctgag gaagacgggt acccgctcac 1100

cgtggctgac tattccggca ctgcaggcga ctccctcctg aagcacagcg 1150

gcatgaggtt caccaccaag gaccgtgaca gcgaccattc agagaacaac 1200

tgtgccgcct tctaccgcgg tgcctggtgg taccgcaact gccacacgtc 1250

caacctcaat gggcagtacc tgcgcggtgc gcacgcctcc tatgccgacg 1300

gcgtggagtg gtcctcctgg accggctggc agtactcact caagttctct 1350

gagatgaaga tccggccggt ccgggaggac cgctagactg gtgcaccttg 1400

tccttggccc tgctggtccc tgtcgcccca tccccgaccc cacctcactc 1450

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cacacatcgc cttctcgccg tccccacccc ctccatttgg cagctcactg 1600

atctcttgcc tctgctgatg ggggctggca aacttgacga ccccaactcc 1650

tgcctgcccc cactgtgact ccggtgctgt ttgccgtccc ctggccagga 1700

tggtggagtc tgccccaggc accctctgcc ctgcccggcc aaatacccgg 1750

cattatgggg acagagagca gggggcagac agcacccctg gagtcctcct 1800

agcagatcgt ggggaatgtc aggtctctct gaggtcaggt ctgaggccag 1850

tatcctccag ccctcccaat gccaaccccc accccgtttc cctggtgccc 1900

agagaaccca cctctccccc aagggcctca gcctggctgt gggctgggtg 1950

gccccatcct accaggccct gaggtcagga tggggagctg ctgcctttgg 2000

ggacccacgc tccaaggctg agaccagttc cctggaggcc acccaccctg 2050

tgccccggca ggcctggggt ctgcagtcct cttacctgct gtgcccacct 2100

gctctctgtc tcaaatgagg cccaacccat cccccaccca gctcccggcc 2150
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280

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gtcctcctac ctggggcagc cggggctgcc atcccatttc tcctgcctct 2200

ggaaggtggg tggggccctg caccgtgggg ctggactgcg ctaatgggaa 2250

gctcttggtt ttctgggctg gggcctaggc agggctggga tgaggcttgt 2300

acaaccccca ccaccaattt cccagggact ccagggtcct gaggcctccc 2350

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ggtcgggggg actggggcac cagaccaggc accacctgga cactttcttg 2550

ttgaatcctc ccaacaccca gcacgctgtc atccccactc cttgtgtgca 2600

cacatgcaga ggtgagaccc gcaggctccc aggaccagca gccacaaggg 2650

cagggctgga gccgggtcct cagctgtctg ctcagcagcc ctggacccgc 2700

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caggtgccta gggggtgtgg ggttccgttc tcccttcccc tcccactgaa 2900

gtttgtgctt aaaaaacaat aaatttgact tggcaccact gggggttggt 2950

gggagaggcc gtgtgacctg gctctctgtc ccagtgccac caggtcatcc 3000

acatgcgcag 3010
```

```
<210> 314
<211> 461
<212> PRT
<213> Homo sapiens

<400> 314
Met Val Asn Asp Arg Trp Lys Thr Met Gly Gly Ala Ala Gln Leu
1               5                   10                  15

Glu Asp Arg Pro Arg Asp Lys Pro Gln Arg Pro Ser Cys Gly Tyr
                20                  25                  30

Val Leu Cys Thr Val Leu Leu Ala Leu Ala Val Leu Leu Ala Val
                35                  40                  45

Ala Val Thr Gly Ala Val Leu Phe Leu Asn His Ala His Ala Pro
                50                  55                  60

Gly Thr Ala Pro Pro Pro Val Val Ser Thr Gly Ala Ala Ser Ala
                65                  70                  75

Asn Ser Ala Leu Val Thr Val Glu Arg Ala Asp Ser Ser His Leu
                80                  85                  90

Ser Ile Leu Ile Asp Pro Arg Cys Pro Asp Leu Thr Asp Ser Phe
                95                  100                 105
```

```
Ala Arg Leu Glu Ser Ala Gln Ala Ser Val Leu Gln Ala Leu Thr
              110                 115                 120

Glu His Gln Ala Gln Pro Arg Leu Val Gly Asp Gln Glu Gln Glu
              125                 130                 135

Leu Leu Asp Thr Leu Ala Asp Gln Leu Pro Arg Leu Leu Ala Arg
              140                 145                 150

Ala Ser Glu Leu Gln Thr Glu Cys Met Gly Leu Arg Lys Gly His
              155                 160                 165

Gly Thr Leu Gly Gln Gly Leu Ser Ala Leu Gln Ser Glu Gln Gly
              170                 175                 180

Arg Leu Ile Gln Leu Leu Ser Glu Ser Gln Gly His Met Ala His
              185                 190                 195

Leu Val Asn Ser Val Ser Asp Ile Leu Asp Ala Leu Gln Arg Asp
              200                 205                 210

Arg Gly Leu Gly Arg Pro Arg Asn Lys Ala Asp Leu Gln Arg Ala
              215                 220                 225

Pro Ala Arg Gly Thr Arg Pro Arg Gly Cys Ala Thr Gly Ser Arg
              230                 235                 240

Pro Arg Asp Cys Leu Asp Val Leu Leu Ser Gly Gln Gln Asp Asp
              245                 250                 255

Gly Val Tyr Ser Val Phe Pro Thr His Tyr Pro Ala Gly Phe Gln
              260                 265                 270

Val Tyr Cys Asp Met Arg Thr Asp Gly Gly Gly Trp Thr Val Phe
              275                 280                 285

Gln Arg Arg Glu Asp Gly Ser Val Asn Phe Phe Arg Gly Trp Asp
              290                 295                 300

Ala Tyr Arg Asp Gly Phe Gly Arg Leu Thr Gly Glu His Trp Leu
              305                 310                 315

Gly Leu Lys Arg Ile His Ala Leu Thr Thr Gln Ala Ala Tyr Glu
              320                 325                 330

Leu His Val Asp Leu Glu Asp Phe Glu Asn Gly Thr Ala Tyr Ala
              335                 340                 345

Arg Tyr Gly Ser Phe Gly Val Gly Leu Phe Ser Val Asp Pro Glu
              350                 355                 360

Glu Asp Gly Tyr Pro Leu Thr Val Ala Asp Tyr Ser Gly Thr Ala
              365                 370                 375

Gly Asp Ser Leu Leu Lys His Ser Gly Met Arg Phe Thr Thr Lys
              380                 385                 390

Asp Arg Asp Ser Asp His Ser Glu Asn Asn Cys Ala Ala Phe Tyr
              395                 400                 405

Arg Gly Ala Trp Trp Tyr Arg Asn Cys His Thr Ser Asn Leu Asn
              410                 415                 420
```

282

```
Gly Gln Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala Asp Gly Val
              425                 430                 435

Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys Phe Ser
              440                 445                 450

Glu Met Lys Ile Arg Pro Val Arg Glu Asp Arg
              455                 460
```

<210> 315
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 315
 cacacgtcca acctcaatgg gcag 24

<210> 316
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 316
 gaccagcagg gccaaggaca agg 23

<210> 317
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 317
 gttctctgag atgaagatcc ggccggtccg ggagtaccgc ttag 44

<210> 318
<211> 1841
<212> DNA
<213> Homo sapiens

<400> 318
 gcagtcagag acttcccctg cccctcgctg ggaaagaaca ttaggaatgc 50

 cttttagtgc cttgcttcct gaactagctc acagtagccc ggcggcccag 100

 ggcaatccga ccacatttca ctctcaccgc tgtaggaatc cagatgcagg 150

 ccaagtacag cagcacgagg gacatgctgg atgatgatgg ggacaccacc 200

 atgagcctgc attctcaagc ctctgccaca actcggcatc cagagccccg 250

 gcgcacagag cacagggctc cctcttcaac gtggcgacca gtggccctga 300

 ccctgctgac tttgtgcttg gtgctgctga tagggctggc agccctgggg 350

 cttttgtttt ttcagtacta ccagctctcc aatactggtc aagacaccat 400
```

```
ttctcaaatg gaagaaagat taggaaatac gtcccaagag ttgcaatctc 450

ttcaagtcca gaatataaag cttgcaggaa gtctgcagca tgtggctgaa 500

aaactctgtc gtgagctgta taacaaagct ggagcacaca ggtgcagccc 550

ttgtacagaa caatggaaat ggcatggaga caattgctac cagttctata 600

aagacagcaa aagttgggag gactgtaaat atttctgcct tagtgaaaac 650

tctaccatgc tgaagataaa caaacaagaa gacctggaat ttgccgcgtc 700

tcagagctac tctgagtttt tctactctta ttggacaggg cttttgcgcc 750

ctgacagtgg caaggcctgg ctgtggatgg atggaacccc tttcacttct 800

gaactgttcc atattataat agatgtcacc agcccaagaa gcagagactg 850

tgtggccatc ctcaatggga tgatcttctc aaaggactgc aaagaattga 900

agcgttgtgt ctgtgagaga agggcaggaa tggtgaagcc agagagcctc 950

catgtcccc ctgaaacatt aggcgaaggt gactgattcg ccctctgcaa 1000

ctacaaatag cagagtgagc caggcggtgc caaagcaagg gctagttgag 1050

acattgggaa atggaacata atcaggaaag actatctctc tgactagtac 1100

aaaatgggtt ctcgtgtttc ctgttcagga tcaccagcat ttctgagctt 1150

gggtttatgc acgtatttaa cagtcacaag aagtcttatt tacatgccac 1200

caaccaacct cagaaaccca taatgtcatc tgccttcttg gcttagagat 1250

aactttttagc tctctttctt ctcaatgtct aatatcacct ccctgttttc 1300

atgtcttcct tacacttggt ggaataagaa acttttgaa gtagaggaaa 1350

tacattgagg taacatcctt ttctctgaca gtcaagtagt ccatcagaaa 1400

ttggcagtca cttcccagat tgtaccagca aatacacaag gaattctttt 1450

tgtttgtttc agttcatact agtcccttcc caatccatca gtaaagaccc 1500

catctgcctt gtccatgccg tttcccaaca gggatgtcac ttgatatgag 1550

aatctcaaat ctcaatgcct tataagcatt ccttcctgtg tccattaaga 1600

ctctgataat tgtctcccct ccataggaat ttctcccagg aaagaaatat 1650

atccccatct ccgtttcata tcagaactac cgtccccgat attcccttca 1700

gagagattaa agaccagaaa aaagtgagcc tcttcatctg cacctgtaat 1750

agtttcagtt cctattttct tccattgacc catatttata cctttcaggt 1800

actgaagatt taataataat aaatgtaaat actgtgaaaa a 1841
```

<210> 319
<211> 280
<212> PRT
<213> Homo sapiens

```
<400> 319
Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp Met Leu Asp Asp Asp
 1               5                  10                      15

Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr
                20                  25                      30

Arg His Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser
                35                  40                      45

Thr Trp Arg Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val
                50                  55                      60

Leu Leu Ile Gly Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr
                65                  70                      75

Tyr Gln Leu Ser Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu
                80                  85                      90

Glu Arg Leu Gly Asn Thr Ser Gln Glu Leu Gln Ser Leu Gln Val
                95                  100                     105

Gln Asn Ile Lys Leu Ala Gly Ser Leu Gln His Val Ala Glu Lys
                110                 115                     120

Leu Cys Arg Glu Leu Tyr Asn Lys Ala Gly Ala His Arg Cys Ser
                125                 130                     135

Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln
                140                 145                     150

Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys
                155                 160                     165

Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp
                170                 175                     180

Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser
                185                 190                     195

Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu
                200                 205                     210

Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile
                215                 220                     225

Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu
                230                 235                     240

Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys
                245                 250                     255

Val Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His
                260                 265                     270

Val Pro Pro Glu Thr Leu Gly Glu Gly Asp
                275                 280

<210> 320
<211> 468
<212> DNA
<213> Homo sapiens


                              285
```

```
<220>
<221> unsure
<222> 59, 95, 149, 331, 364, 438, 446
<223> unknown base

<400> 320
 aattttcacc gctgtaggaa tccagatgca ggccaagtac agcagcacga 50

 gggacatgnt ggatgatgat gggacaccac catgagcctg cattntcaag 100

 cttttgccac aattcggcat ccagagcccc ggcgcacaga gcacagggnt 150

 ccttttcaa cgtggcgacc agtggccctg accctgctga ctttgtgctt 200

 ggtgctgctg atagggctgg cagccctggg gcttttgttt tttcagtact 250

 accagctctc caatactggt caagacacca tttctcaaat ggaagaaaga 300

 ttaggaaata cgtcccaaga gttgcaattt nttcaagtcc agaatataaa 350

 gcttgcagga agtntgcagc atgtggctga aaaactctgt cgtgagctgt 400

 ataacaaagc tggaggaact ttgaaggagg gcaaagtntc ctcatntact 450

 atacacacac cacttccc 468

<210> 321
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 321
 atgcaggcca agtacagcag cac 23

<210> 322
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 322
 catgctgacg acttcctgca agc 23

<210> 323
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 323
 ccacacagtc tctgcttctt ggg 23

<210> 324
<211> 40
<212> DNA
<213> Artificial Sequence
```

286

<220>
<223> Synthetic oligonucleotide probe

<400> 324
 atgctggatg atgatgggga caccaccatg agcctgcatt 40

<210> 325
<211> 2988
<212> DNA
<213> Homo sapiens

<400> 325
 gccgagcgca agaaccctgc gcagcccaga gcagctgctg gagggggaatc 50

 gaggcgcggc tccggggatt cggctcgggc cgctggctct gctctgcggg 100

 gagggagcgg gcccgcccgc ggggcccgag ccctccggat ccgccccctc 150

 cccggtcccg ccccctcgga gactcctctg gctgctctgg gggttcgccg 200

 gggccgggga cccgcggtcc gggcgccatg cgggcatcgc tgctgctgtc 250

 ggtgctgcgg cccgcagggc ccgtggccgt gggcatctcc ctgggcttca 300

 ccctgagcct gctcagcgtc acctgggtgg aggagccgtg cggcccaggc 350

 ccgccccaac ctggagactc tgagctgccg ccgcgcggca acaccaacgc 400 .

 ggcgcgccgg cccaactcgg tgcagcccgg agcggagcgc gagaagcccg 450

 gggccggcga aggcgccggg gagaattggg agccgcgcgt cttgccctac 500

 caccctgcac agcccggcca ggccgccaaa aaggccgtca ggacccgcta 550

 catcagcacg gagctgggca tcaggcagag gctgctggtg gcggtgctga 600

 cctctcagac cacgctgccc acgctgggcg tggccgtgaa ccgcacgctg 650

 gggcaccggc tggagcgtgt ggtgttcctg acgggcgcac ggggccgccg 700

 ggccccacct ggcatggcag tggtgacgct gggcgaggag cgacccattg 750

 gacacctgca cctggcgctg cgccacctgc tggagcagca cggcgacgac 800

 tttgactggt tcttcctggt gcctgacacc acctacaccg aggcgcacgg 850

 cctggcacgc ctaactggcc acctcagcct ggcctccgcc gcccacctgt 900

 acctgggccg gcccccaggac ttcatcggcg gagagcccac ccccggccgc 950

 tactgccacg gaggctttgg ggtgctgctg tcgcgcatgc tgctgcaaca 1000

 actgcgcccc cacctggaag gctgccgcaa cgacatcgtc agtgcgcgcc 1050

 ctgacgagtg gctgggtcgc tgcattctcg atgccaccgg ggtgggctgc 1100

 actggtgacc acgagggggt gcactatagc catctggagc tgagccctgg 1150

 ggagccagtc caggaggggg accctcattt ccgaagtgcc ctgacagccc 1200

 accctgtgcg tgaccctgtg cacatgtacc agctgcacaa agctttcgcc 1250

 cgagctgaac tggaacgcac gtaccaggag atccaggagt tacagtggga 1300

287

```
gatccagaat accagccatc tggccgttga tggggaccgg gcagctgctt 1350

ggcccgtggg tattccagca ccatcccgcc cggcctcccg ctttgaggtg 1400

ctgcgctggg actacttcac ggagcagcac gctttctcct gcgccgatgg 1450

ctcaccccgc tgcccactgc gtggggctga ccgggctgat gtggccgatg 1500

ttctggggac agctctagag gagctgaacc gccgctacca cccggccttg 1550

cggctccaga agcagcagct ggtgaatggc taccgacgct ttgatccggc 1600

ccggggtatg gaatacacgc tggacttgca gctggaggca ctgacccccc 1650

aggggaggccg ccggcccctc actcgccgag tgcagctgct ccggccgctg 1700

agccgcgtgg agatcttgcc tgtgccctat gtcactgagg cctcacgtct 1750

cactgtgctg ctgcctctag ctgcggctga gcgtgacctg gcccctggct 1800

tcttggaggc ctttgccact gcagcactgg agcctggtga tgctgcggca 1850

gccctgaccc tgctgctact gtatgagccg cgccaggccc agcgcgtggc 1900

ccatgcagat gtcttcgcac ctgtcaaggc ccacgtggca gagctggagc 1950

ggcgtttccc cggtgcccgg gtgccatggc tcagtgtgca gacagccgca 2000

ccctcaccac tgcgcctcat ggatctactc tccaagaagc acccgctgga 2050

cacactgttc ctgctggccg ggccagacac ggtgctcacg cctgacttcc 2100

tgaaccgctg ccgcatgcat gccatctccg gctggcaggc cttctttccc 2150

atgcatttcc aagccttcca cccaggtgtg gcccccaccac aagggcctgg 2200

gcccccagag ctgggccgtg acactggccg ctttgatcgc caggcagcca 2250

gcgaggcctg cttctacaac tccgactacg tggcagcccg tgggcgcctg 2300

gcggcagcct cagaacaaga agaggagctg ctggagagcc tggatgtgta 2350

cgagctgttc ctccacttct ccagtctgca tgtgctgcgg gcggtggagc 2400

cggcgctgct gcagcgctac cgggcccaga cgtgcagcgc gaggctcagt 2450

gaggacctgt accaccgctg cctccagagc gtgcttgagg gcctcggctc 2500

ccgaacccag ctggccatgc tactctttga acaggagcag ggcaacagca 2550

cctgacccca ccctgtcccc gtgggccgtg gcatggccac accccacccc 2600

acttctcccc caaaaccaga gccacctgcc agcctcgctg ggcagggctg 2650

gccgtagcca gaccccaagc tggcccactg gtcccctctc tggctctgtg 2700

ggtccctggg ctctggacaa gcactggggg acgtgccccc agagccaccc 2750

acttctcatc ccaaacccag tttccctgcc ccctgacgct gctgattcgg 2800

gctgtggcct ccacgtattt atgcagtaca gtctgcctga cgccagccct 2850

gcctctgggc cctggggggct gggctgtaga agagttgttg gggaaggagg 2900
```

288

```
gagctgagga gggggcatct cccaacttct ccctttgga ccctgccgaa 2950

gctccctgcc tttaataaac tggccaagtg tggaaaaa 2988
```

<210> 326
<211> 775
<212> PRT
<213> Homo sapiens

<400> 326

```
Met Arg Ala Ser Leu Leu Leu Ser Val Leu Arg Pro Ala Gly Pro
 1               5                  10                  15

Val Ala Val Gly Ile Ser Leu Gly Phe Thr Leu Ser Leu Leu Ser
                20                  25                  30

Val Thr Trp Val Glu Glu Pro Cys Gly Pro Gly Pro Pro Gln Pro
                35                  40                  45

Gly Asp Ser Glu Leu Pro Pro Arg Gly Asn Thr Asn Ala Ala Arg
                50                  55                  60

Arg Pro Asn Ser Val Gln Pro Gly Ala Glu Arg Glu Lys Pro Gly
                65                  70                  75

Ala Gly Glu Gly Ala Gly Glu Asn Trp Glu Pro Arg Val Leu Pro
                80                  85                  90

Tyr His Pro Ala Gln Pro Gly Gln Ala Ala Lys Lys Ala Val Arg
                95                  100                 105

Thr Arg Tyr Ile Ser Thr Glu Leu Gly Ile Arg Gln Arg Leu Leu
                110                 115                 120

Val Ala Val Leu Thr Ser Gln Thr Thr Leu Pro Thr Leu Gly Val
                125                 130                 135

Ala Val Asn Arg Thr Leu Gly His Arg Leu Glu Arg Val Val Phe
                140                 145                 150

Leu Thr Gly Ala Arg Gly Arg Arg Ala Pro Pro Gly Met Ala Val
                155                 160                 165

Val Thr Leu Gly Glu Glu Arg Pro Ile Gly His Leu His Leu Ala
                170                 175                 180

Leu Arg His Leu Leu Glu Gln His Gly Asp Asp Phe Asp Trp Phe
                185                 190                 195

Phe Leu Val Pro Asp Thr Thr Tyr Thr Glu Ala His Gly Leu Ala
                200                 205                 210

Arg Leu Thr Gly His Leu Ser Leu Ala Ser Ala Ala His Leu Tyr
                215                 220                 225

Leu Gly Arg Pro Gln Asp Phe Ile Gly Gly Glu Pro Thr Pro Gly
                230                 235                 240

Arg Tyr Cys His Gly Gly Phe Gly Val Leu Leu Ser Arg Met Leu
                245                 250                 255

Leu Gln Gln Leu Arg Pro His Leu Glu Gly Cys Arg Asn Asp Ile
                260                 265                 270
```

289

```
Val Ser Ala Arg Pro Asp Glu Trp Leu Gly Arg Cys Ile Leu Asp
              275             280             285

Ala Thr Gly Val Gly Cys Thr Gly Asp His Glu Gly Val His Tyr
              290             295             300

Ser His Leu Glu Leu Ser Pro Gly Glu Pro Val Gln Glu Gly Asp
              305             310             315

Pro His Phe Arg Ser Ala Leu Thr Ala His Pro Val Arg Asp Pro
              320             325             330

Val His Met Tyr Gln Leu His Lys Ala Phe Ala Arg Ala Glu Leu
              335             340             345

Glu Arg Thr Tyr Gln Glu Ile Gln Glu Leu Gln Trp Glu Ile Gln
              350             355             360

Asn Thr Ser His Leu Ala Val Asp Gly Asp Arg Ala Ala Ala Trp
              365             370             375

Pro Val Gly Ile Pro Ala Pro Ser Arg Pro Ala Ser Arg Phe Glu
              380             385             390

Val Leu Arg Trp Asp Tyr Phe Thr Glu Gln His Ala Phe Ser Cys
              395             400             405

Ala Asp Gly Ser Pro Arg Cys Pro Leu Arg Gly Ala Asp Arg Ala
              410             415             420

Asp Val Ala Asp Val Leu Gly Thr Ala Leu Glu Glu Leu Asn Arg
              425             430             435

Arg Tyr His Pro Ala Leu Arg Leu Gln Lys Gln Gln Leu Val Asn
              440             445             450

Gly Tyr Arg Arg Phe Asp Pro Ala Arg Gly Met Glu Tyr Thr Leu
              455             460             465

Asp Leu Gln Leu Glu Ala Leu Thr Pro Gln Gly Gly Arg Arg Pro
              470             475             480

Leu Thr Arg Arg Val Gln Leu Leu Arg Pro Leu Ser Arg Val Glu
              485             490             495

Ile Leu Pro Val Pro Tyr Val Thr Glu Ala Ser Arg Leu Thr Val
              500             505             510

Leu Leu Pro Leu Ala Ala Ala Glu Arg Asp Leu Ala Pro Gly Phe
              515             520             525

Leu Glu Ala Phe Ala Thr Ala Ala Leu Glu Pro Gly Asp Ala Ala
              530             535             540

Ala Ala Leu Thr Leu Leu Leu Leu Tyr Glu Pro Arg Gln Ala Gln
              545             550             555

Arg Val Ala His Ala Asp Val Phe Ala Pro Val Lys Ala His Val
              560             565             570

Ala Glu Leu Glu Arg Arg Phe Pro Gly Ala Arg Val Pro Trp Leu   .
              575             580             585
```

```
Ser Val Gln Thr Ala Ala Pro Ser Pro Leu Arg Leu Met Asp Leu
            590             595                 600

Leu Ser Lys Lys His Pro Leu Asp Thr Leu Phe Leu Leu Ala Gly
            605             610                 615

Pro Asp Thr Val Leu Thr Pro Asp Phe Leu Asn Arg Cys Arg Met
            620             625                 630

His Ala Ile Ser Gly Trp Gln Ala Phe Phe Pro Met His Phe Gln
            635             640                 645

Ala Phe His Pro Gly Val Ala Pro Pro Gln Gly Pro Gly Pro Pro
            650             655                 660

Glu Leu Gly Arg Asp Thr Gly Arg Phe Asp Arg Gln Ala Ala Ser
            665             670                 675

Glu Ala Cys Phe Tyr Asn Ser Asp Tyr Val Ala Ala Arg Gly Arg
            680             685                 690

Leu Ala Ala Ala Ser Glu Gln Glu Glu Glu Leu Leu Glu Ser Leu
            695             700                 705

Asp Val Tyr Glu Leu Phe Leu His Phe Ser Ser Leu His Val Leu
            710             715                 720

Arg Ala Val Glu Pro Ala Leu Leu Gln Arg Tyr Arg Ala Gln Thr
            725             730                 735

Cys Ser Ala Arg Leu Ser Glu Asp Leu Tyr His Arg Cys Leu Gln
            740             745                 750

Ser Val Leu Glu Gly Leu Gly Ser Arg Thr Gln Leu Ala Met Leu
            755             760                 765

Leu Phe Glu Gln Glu Gln Gly Asn Ser Thr
            770             775
```

<210> 327
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 327
 tggaaggctg ccgcaacgac aatc 24

<210> 328
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 328
 ctgatgtggc cgatgttctg 20

<210> 329
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 329
 atggctcagt gtgcagacag 20

<210> 330
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 330
 gcatgctgct ccgtgaagta gtcc 24

<210> 331
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 331
 atgcatggga aagaaggcct gccc 24

<210> 332
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 332
 tgcactggtg accacgaggg ggtgcactat agccatctgg agctgag 47

<210> 333
<211> 1095
<212> DNA
<213> Homo sapiens

<400> 333
 gctctggccg gccccggcga ttggtcaccg cccgctaggg gacagccctg 50

 gcctcctctg attggcaagc gctggccacc tccccacacc ccttgcgaac 100

 gctcccctag tggagaaaag gagtagctat tagccaattc ggcagggccc 150

 gcttttttaga agcttgattt cctttgaaga tgaaagacta gcggaagctc 200

 tgcctctttc cccagtgggc gagggaactc ggggcgattg gctgggaact 250

 gtatccaccc aaatgtcacc gatttcttcc tatgcaggaa atgagcagac 300

 ccatcaataa gaaatttctc agcctggccg aaaatggttg gccccacgaa 350

 gccacgacaa ctggaggcaa agagggttgc tcaacgcccc gcctcattgg 400

292

```
aaaaccaaat cagatctggg acctatatag cgtggcggag gcggggcgat 450

gattgtcgcg ctcgcaccca ctgcagctgc gcacagtcgc atttctttcc 500

ccgcccctga gaccctgcag caccatctgt catggcggct gggctgtttg 550

gtttgagcgc tcgccgtctt ttggcggcag cggcgacgcg agggctcccg 600

gccgcccgcg tccgctggga atctagcttc tccaggactg tggtcgcccc 650

gtccgctgtg gcgggaaagc ggcccccaga accgaccaca ccgtggcaag 700

aggacccaga acccgaggac gaaaacttgt atgagaagaa cccagactcc 750

catggttatg acaaggaccc cgttttggac gtctggaaca tgcgacttgt 800

cttcttcttt ggcgtctcca tcatcctggt ccttggcagc acctttgtgg 850

cctatctgcc tgactacagg atgaaagagt ggtcccgccg cgaagctgag 900

aggcttgtga ataccgaga ggccaatggc cttcccatca tggaatccaa 950

ctgcttcgac cccagcaaga tccagctgcc agaggatgag tgaccagttg 1000

ctaagtgggg ctcaagaagc accgccttcc ccaccccctg cctgccattc 1050

tgacctcttc tcagagcacc taattaaagg ggctgaaagt ctgaa 1095
```

<210> 334
<211> 153
<212> PRT
<213> Homo sapiens

<400> 334

```
Met Ala Ala Gly Leu Phe Gly Leu Ser Ala Arg Arg Leu Leu Ala
 1               5                  10                  15

Ala Ala Ala Thr Arg Gly Leu Pro Ala Ala Arg Val Arg Trp Glu
                20                  25                  30

Ser Ser Phe Ser Arg Thr Val Val Ala Pro Ser Ala Val Ala Gly
                35                  40                  45

Lys Arg Pro Pro Glu Pro Thr Thr Pro Trp Gln Glu Asp Pro Glu
                50                  55                  60

Pro Glu Asp Glu Asn Leu Tyr Glu Lys Asn Pro Asp Ser His Gly
                65                  70                  75

Tyr Asp Lys Asp Pro Val Leu Asp Val Trp Asn Met Arg Leu Val
                80                  85                  90

Phe Phe Phe Gly Val Ser Ile Ile Leu Val Leu Gly Ser Thr Phe
                95                  100                 105

Val Ala Tyr Leu Pro Asp Tyr Arg Met Lys Glu Trp Ser Arg Arg
                110                 115                 120

Glu Ala Glu Arg Leu Val Lys Tyr Arg Glu Ala Asn Gly Leu Pro
                125                 130                 135

Ile Met Glu Ser Asn Cys Phe Asp Pro Ser Lys Ile Gln Leu Pro
                140                 145                 150
```

293

Glu Asp Glu

<210> 335
<211> 442
<212> DNA
<213> Homo sapiens

<400> 335
ggcggctggg ctgtttggtt tgagcgctcg ccgtcttttg gcggcagcgg 50

cgacgcgagg gctcccggcc gcccgcgtcc gctgggaatc tagcttctcc 100

aggactgtgg tcgcccgtc cgctgtggcg ggaaagcggc ccccagaacc 150

gaccacaccg tggcaagagg acccagaacc cgaggacgaa aacttgtatg 200

agaagaaccc agactcccat ggttatgaca aggacccgt tttggacgtc 250

tggaacatgc gacttgtctt cttctttggc gtctccatca tcctggtcct 300

tggcagcacc tttgtggcct atctgcctga ctacaggatg aaagagtggt 350

cccgccgcga agctgagagg cttgtgaaat accgagaggc caatggcctt 400

cccatcatgg aatccaactg cttcgacccc agcaagatcc ag 442

<210> 336
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 336
ctgagaccct gcagcaccat ctg 23

<210> 337
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 337
ggtgcttctt gagccccact tagc 24

<210> 338
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 338
aatctagctt ctccaggact gtggtcgccc cgtccgctgt 40

<210> 339
<211> 2162
<212> DNA

294

<213> Homo sapiens

<400> 339
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gcggcggcta tgccgcttgc tctgctcgtc ctgttgctcc tggggcccgg 50

cggctggtgc cttgcagaac ccccacgcga cagcctgcgg gaggaacttg 100

tcatcacccc gctgccttcc ggggacgtag ccgccacatt ccagttccgc 150

acgcgctggg attcggagct tcagcgggaa ggagtgtccc attacaggct 200

ctttcccaaa gccctggggc agctgatctc caagtattct ctacgggagc 250

tgcacctgtc attcacacaa ggcttttgga ggacccgata ctgggggcca 300

cccttcctgc aggccccatc aggtgcagag ctgtgggtct ggttccaaga 350

cactgtcact gatgtggata aatcttggaa ggagctcagt aatgtcctct 400

cagggatctt ctgcgcctct ctcaacttca tcgactccac caacacagtc 450

actcccactg cctccttcaa acccctgggt ctggccaatg acactgacca 500

ctactttctg cgctatgctg tgctgccgcg ggaggtggtc tgcaccgaaa 550

acctcacccc ctggaagaag ctcttgccct gtagttccaa ggcaggcctc 600

tctgtgctgc tgaaggcaga tcgcttgttc cacaccagct accactccca 650

ggcagtgcat atccgccctg tttgcagaaa tgcacgctgt actagcatct 700

cctgggagct gaggcagacc ctgtcagttg tatttgatgc cttcatcacg 750

gggcagggaa agaaagactg gtccctcttc cggatgttct cccgaaccct 800

cacggagccc tgccccctgg cttcagagag ccgagtctat gtggacatca 850

ccacctacaa ccaggacaac gagacattag aggtgcaccc acccccgacc 900

actacatatc aggacgtcat cctaggcact cggaagacct atgccatcta 950

tgacttgctt gacaccgcca tgatcaacaa ctctcgaaac ctcaacatcc 1000

agctcaagtg gaagagaccc ccagagaatg aggccccccc agtgcccttc 1050

ctgcatgccc agcggtacgt gagtggctat gggctgcaga aggggggagct 1100

gagcacactg ctgtacaaca cccacccata ccgggccttc ccggtgctgc 1150

tgctggacac cgtaccctgg tatctgcggc tgtatgtgca caccctcacc 1200

atcacctcca agggcaagga gaacaaacca agttacatcc actaccagcc 1250

tgcccaggac cggctgcaac cccacctcct ggagatgctg attcagctgc 1300

cggccaactc agtcaccaag gtttccatcc agtttgagcg ggcgctgctg 1350

aagtggaccg agtacacgcc agatcctaac catggcttct atgtcagccc 1400

atctgtcctc agcgcccttg tgcccagcat ggtagcagcc aagccagtgg 1450

actgggaaga gagtcccctc ttcaacagcc tgttcccagt ctctgatggc 1500
```

295

```
tctaactact ttgtgcggct ctacacggag ccgctgctgg tgaacctgcc 1550

gacaccggac ttcagcatgc cctacaacgt gatctgcctc acgtgcactg 1600

tggtggccgt gtgctacggc tccttctaca atctcctcac ccgaaccttc 1650

cacatcgagg agccccgcac aggtggcctg gccaagcggc tggccaacct 1700

tatccggcgc gcccgaggtg tccccccact ctgattcttg ccctttccag 1750

cagctgcagc tgccgtttct ctctggggag gggagcccaa gggctgtttc 1800

tgccacttgc tctcctcaga gttggctttt gaaccaaagt gccctggacc 1850

aggtcagggc ctacagctgt gttgtccagt acaggagcca cgagccaaat 1900

gtggcatttg aatttgaatt aacttagaaa ttcatttcct cacctgtagt 1950

ggccacctct atattgaggt gctcaataag caaaagtggt cggtggctgc 2000

tgtattggac agcacagaaa aagatttcca tcaccacaga aaggtcggct 2050

ggcagcactg gccaaggtga tggggtgtgc tacacagtgt atgtcactgt 2100

gtagtggatg gagtttactg tttgtggaat aaaaacggct gtttccgtgg 2150

aaaaaaaaaa aa 2162
```

<210> 340
<211> 574
<212> PRT
<213> Homo sapiens

<400> 340

```
Met Pro Leu Ala Leu Leu Val Leu Leu Leu Leu Gly Pro Gly Gly
 1               5                  10                  15

Trp Cys Leu Ala Glu Pro Pro Arg Asp Ser Leu Arg Glu Glu Leu
                20                  25                  30

Val Ile Thr Pro Leu Pro Ser Gly Asp Val Ala Ala Thr Phe Gln
                35                  40                  45

Phe Arg Thr Arg Trp Asp Ser Glu Leu Gln Arg Glu Gly Val Ser
                50                  55                  60

His Tyr Arg Leu Phe Pro Lys Ala Leu Gly Gln Leu Ile Ser Lys
                65                  70                  75

Tyr Ser Leu Arg Glu Leu His Leu Ser Phe Thr Gln Gly Phe Trp
                80                  85                  90

Arg Thr Arg Tyr Trp Gly Pro Pro Phe Leu Gln Ala Pro Ser Gly
                95                  100                 105

Ala Glu Leu Trp Val Trp Phe Gln Asp Thr Val Thr Asp Val Asp
                110                 115                 120

Lys Ser Trp Lys Glu Leu Ser Asn Val Leu Ser Gly Ile Phe Cys
                125                 130                 135

Ala Ser Leu Asn Phe Ile Asp Ser Thr Asn Thr Val Thr Pro Thr
                140                 145                 150
```

296

```
Ala Ser Phe Lys Pro Leu Gly Leu Ala Asn Asp Thr Asp His Tyr
            155             160                 165

Phe Leu Arg Tyr Ala Val Leu Pro Arg Glu Val Val Cys Thr Glu
            170             175                 180

Asn Leu Thr Pro Trp Lys Lys Leu Leu Pro Cys Ser Ser Lys Ala
            185             190                 195

Gly Leu Ser Val Leu Leu Lys Ala Asp Arg Leu Phe His Thr Ser
            200             205                 210

Tyr His Ser Gln Ala Val His Ile Arg Pro Val Cys Arg Asn Ala
            215             220                 225

Arg Cys Thr Ser Ile Ser Trp Glu Leu Arg Gln Thr Leu Ser Val
            230             235                 240

Val Phe Asp Ala Phe Ile Thr Gly Gln Gly Lys Lys Asp Trp Ser
            245             250                 255

Leu Phe Arg Met Phe Ser Arg Thr Leu Thr Glu Pro Cys Pro Leu
            260             265                 270

Ala Ser Glu Ser Arg Val Tyr Val Asp Ile Thr Thr Tyr Asn Gln
            275             280                 285

Asp Asn Glu Thr Leu Glu Val His Pro Pro Pro Thr Thr Thr Tyr
            290             295                 300

Gln Asp Val Ile Leu Gly Thr Arg Lys Thr Tyr Ala Ile Tyr Asp
            305             310                 315

Leu Leu Asp Thr Ala Met Ile Asn Asn Ser Arg Asn Leu Asn Ile
            320             325                 330

Gln Leu Lys Trp Lys Arg Pro Pro Glu Asn Glu Ala Pro Pro Val
            335             340                 345

Pro Phe Leu His Ala Gln Arg Tyr Val Ser Gly Tyr Gly Leu Gln
            350             355                 360

Lys Gly Glu Leu Ser Thr Leu Leu Tyr Asn Thr His Pro Tyr Arg
            365             370                 375

Ala Phe Pro Val Leu Leu Leu Asp Thr Val Pro Trp Tyr Leu Arg
            380             385                 390

Leu Tyr Val His Thr Leu Thr Ile Thr Ser Lys Gly Lys Glu Asn
            395             400                 405

Lys Pro Ser Tyr Ile His Tyr Gln Pro Ala Gln Asp Arg Leu Gln
            410             415                 420

Pro His Leu Leu Glu Met Leu Ile Gln Leu Pro Ala Asn Ser Val
            425             430                 435

Thr Lys Val Ser Ile Gln Phe Glu Arg Ala Leu Leu Lys Trp Thr
            440             445                 450

Glu Tyr Thr Pro Asp Pro Asn His Gly Phe Tyr Val Ser Pro Ser
            455             460                 465
```

```
Val Leu Ser Ala Leu Val Pro Ser Met Val Ala Ala Lys Pro Val
                470                 475                 480

Asp Trp Glu Glu Ser Pro Leu Phe Asn Ser Leu Phe Pro Val Ser
                485                 490                 495

Asp Gly Ser Asn Tyr Phe Val Arg Leu Tyr Thr Glu Pro Leu Leu
                500                 505                 510

Val Asn Leu Pro Thr Pro Asp Phe Ser Met Pro Tyr Asn Val Ile
                515                 520                 525

Cys Leu Thr Cys Thr Val Val Ala Val Cys Tyr Gly Ser Phe Tyr
                530                 535  .              540

Asn Leu Leu Thr Arg Thr Phe His Ile Glu Glu Pro Arg Thr Gly
                545                 550                 555

Gly Leu Ala Lys Arg Leu Ala Asn Leu Ile Arg Arg Ala Arg Gly
                560                 565                 570

Val Pro Pro Leu
```

<210> 341
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 341
 tggacaccgt accctggtat ctgc 24

<210> 342
<211> 24
<212> DNA
<213> Artificial Seqeunce

<220>
<221> Artificial Sequence
<222> 1-24
<223> Synthetic oligonucleotide probe

<400> 342
 ccaactctga ggagagcaag tggc 24

<210> 343
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 343
 tgtatgtgca caccctcacc atcacctcca agggcaagga gaac 44

<210> 344
<211> 762
<212> DNA
<213> Homo sapiens

298

<400> 344

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caacatgggg tccagcagct tcttggtcct catggtgtct ctcgttcttg 50

tgaccctggt ggctgtggaa ggagttaaag agggtataga gaaagcaggg 100

gtttgcccag ctgacaacgt acgctgcttc aagtccgatc ctccccagtg 150

tcacacagac caggactgtc tgggggaaag gaagtgttgt tacctgcact 200

gtggcttcaa gtgtgtgatt cctgtgaagg aactggaaga aggaggaaac 250

aaggatgaag atgtgtcaag gccataccct gagccaggat gggaggccaa 300

gtgtccaggc tcctcctcta ccaggtgtcc tcagaaatga tgctgggtcc 350

tttctacctc tgggggtcac tctcacttgg cacctgcccc tgagggtcct 400

gagacttgga atatggaaga agcaataccc aaccccacca agaaaaacct 450

gagcttgaag tccttttccc caaaaagagg gaagagtcac aaaaagtcca 500

gaccccaggg acggtacttt ccctctctac ctggtgctcc tccctaatgc 550

tcatgaatgg acccctcatg aatgaaacca gtgcccttat aagagacccc 600

aaagagctgc cttgcccttc tgcaatgtgt gatcacagct agaaggcact 650

gtcagagaag agaaactggt cctcaccaga tgctgaatct gctggtgcct 700

tgatcttgga cttcccagcc tctagaactg taagaaataa atatttgctg 750

tttataatcc aa 762
```

<210> 345
<211> 111
<212> PRT
<213> Homo sapiens

<400> 345

```
Met Gly Ser Ser Ser Phe Leu Val Leu Met Val Ser Leu Val Leu
1               5                   10                  15

Val Thr Leu Val Ala Val Glu Gly Val Lys Glu Gly Ile Glu Lys
                20                  25                  30

Ala Gly Val Cys Pro Ala Asp Asn Val Arg Cys Phe Lys Ser Asp
                35                  40                  45

Pro Pro Gln Cys His Thr Asp Gln Asp Cys Leu Gly Glu Arg Lys
                50                  55                  60

Cys Cys Tyr Leu His Cys Gly Phe Lys Cys Val Ile Pro Val Lys
                65                  70                  75

Glu Leu Glu Glu Gly Gly Asn Lys Asp Glu Asp Val Ser Arg Pro
                80                  85                  90

Tyr Pro Glu Pro Gly Trp Glu Ala Lys Cys Pro Gly Ser Ser Ser
                95                  100                 105

Thr Arg Cys Pro Gln Lys
                110
```

299

<400> 346

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aaactcagca cttgccggag tggctcattg ttaagacaaa gggtgtgcac 50
ttcctggcca ggaaacctga gcggtgagac tcccagctgc ctacatcaag 100
gccccaggac atgcagaacc ttcctctaga acccgaccca ccaccatgag 150
gtcctgcctg tggagatgca ggcacctgag ccaaggcgtc cagtggtcct 200
tgcttctggc tgtcctggtc ttctttctct tcgccttgcc ctcttttatt 250
aaggagcctc aaacaaagcc ttccaggcat caacgcacag agaacattaa 300
agaaaggtct ctacagtccc tggcaaagcc taagtcccag gcacccacaa 350
gggcgaggag gacaaccatc tatgcagagc cagcgccaga gaacaatgcc 400
ctcaacacac aaacccagcc caaggcccac accaccggag acagaggaaa 450
ggaggccaac caggcaccgc cggaggagca ggacaaggtg ccccacacag 500
cacagagggc agcatggaag agcccagaaa aagagaaaac catggtgaac 550
acactgtcac ccagagggca agatgcaggg atggcctctg gcaggacaga 600
ggcacaatca tggaagagcc aggacacaaa gacgacccaa ggaaatgggg 650
gccagaccag gaagctgacg gcctccagga cggtgtcaga gaagcaccag 700
ggcaaagcgg caaccacagc caagacgctc attcccaaaa gtcagcacag 750
aatgctggct cccacaggag cagtgtcaac aaggacgaga cagaaaggag 800
tgaccacagc agtcatccca cctaaggaga agaaacctca ggccacccca 850
cccccctgccc ctttccagag ccccacgacg cagagaaacc aaagactgaa 900
ggccgccaac ttcaaatctg agcctcggtg ggattttgag gaaaaataca 950
gcttcgaaat aggaggcctt cagacgactt gccctgactc tgtgaagatc 1000
aaagcctcca agtcgctgtg gctccagaaa ctctttctgc ccaacctcac 1050
tctcttcctg gactccagac acttcaacca gagtgagtgg gaccgcctgg 1100
aacactttgc accacccttt ggcttcatgg agctcaacta ctccttggtg 1150
cagaaggtcg tgacacgctt ccctccagtg ccccagcagc agctgctcct 1200
ggccagcctc cccgctggga gcctccggtg catcacctgt gccgtggtgg 1250
gcaacggggg catcctgaac aactcccaca tgggccagga gatagacagt 1300
cacgactacg tgttccgatt gagcggagct ctcattaaag gctacgaaca 1350
ggatgtgggg actcggacat ccttctacgg ctttaccgcc ttctccctga 1400
cccagtcact ccttatattg ggcaatcggg gtttcaagaa cgtgcctctt 1450
```

300

```
gggaaggacg tccgctactt gcacttcctg gaaggcaccc gggactatga 1500

gtggctggaa gcactgctta tgaatcagac ggtgatgtca aaaaaccttt 1550

tctggttcag gcacagaccc caggaagctt ttcgggaagc cctgcacatg 1600

gacaggtacc tgttgctgca cccagacttt ctccgataca tgaagaacag 1650

gtttctgagg tctaagaccc tggatggtgc ccactggagg atataccgcc 1700

ccaccactgg ggccctcctg ctgctcactg cccttcagct ctgtgaccag 1750

gtgagtgctt atggcttcat cactgagggc catgagcgct tttctgatca 1800

ctactatgat acatcatgga agcggctgat cttttacata aaccatgact 1850

tcaagctgga gagagaagtc tggaagcggc tacacgatga agggataatc 1900

cggctgtacc agcgtcctgg tcccggaact gccaaagcca agaactgacc 1950

ggggccaggg ctgccatggt ctccttgcct gctccaaggc acaggataca 2000

gtgggaatct tgagactctt tggccatttc ccatggctca gactaagctc 2050

caagcccttc aggagttcca agggaacact tgaaccatgg acaagactct 2100

ctcaagatgg caaatggcta attgaggttc tgaagttctt cagtacattg 2150

ctgtaggtcc tgaggccagg gattttttaat taaatggggt gatgggtggc 2200

caataccaca attcctgctg aaaaacactc ttccagtcca aaagcttctt 2250

gatacagaaa aaagagcctg gatttacaga aacatataga tctggtttga 2300

attccagatc gagtttacag ttgtgaaatc ttgaaggtat tacttaactt 2350

cactacagat tgtctagaag acctttctag gagttatctg attctagaag 2400

ggtctatact tgtccttgtc tttaagctat ttgacaactc tacgtgttgt 2450

agaaaactga taataataca aatgattgtt gtccatggaa aggcaaataa 2500

attttctaca gtgaaaaaaa aaaaaaaa 2528
```

<210> 347
<211> 600
<212> PRT
<213> Homo sapiens

<400> 347

```
Met Arg Ser Cys Leu Trp Arg Cys Arg His Leu Ser Gln Gly Val
1               5                   10                  15

Gln Trp Ser Leu Leu Leu Ala Val Leu Val Phe Phe Leu Phe Ala
                20                  25                  30

Leu Pro Ser Phe Ile Lys Glu Pro Gln Thr Lys Pro Ser Arg His
                35                  40                  45

Gln Arg Thr Glu Asn Ile Lys Glu Arg Ser Leu Gln Ser Leu Ala
                50                  55                  60

Lys Pro Lys Ser Gln Ala Pro Thr Arg Ala Arg Arg Thr Thr Ile
```

301

Tyr Ala Glu Pro Ala Pro Glu Asn Asn Ala Leu Asn Thr Gln Thr
                80   85   90

Gln Pro Lys Ala His Thr Thr Gly Asp Arg Gly Lys Glu Ala Asn
                95   100   105

Gln Ala Pro Pro Glu Glu Gln Asp Lys Val Pro His Thr Ala Gln
               110   115   120

Arg Ala Ala Trp Lys Ser Pro Glu Lys Glu Lys Thr Met Val Asn
               125   130   135

Thr Leu Ser Pro Arg Gly Gln Asp Ala Gly Met Ala Ser Gly Arg
               140   145   150

Thr Glu Ala Gln Ser Trp Lys Ser Gln Asp Thr Lys Thr Thr Gln
               155   160   165

Gly Asn Gly Gly Gln Thr Arg Lys Leu Thr Ala Ser Arg Thr Val
               170   175   180

Ser Glu Lys His Gln Gly Lys Ala Ala Thr Thr Ala Lys Thr Leu
               185   190   195

Ile Pro Lys Ser Gln His Arg Met Leu Ala Pro Thr Gly Ala Val
               200   205   210

Ser Thr Arg Thr Arg Gln Lys Gly Val Thr Thr Ala Val Ile Pro
               215   220   225

Pro Lys Glu Lys Lys Pro Gln Ala Thr Pro Pro Pro Ala Pro Phe
               230   235   240

Gln Ser Pro Thr Thr Gln Arg Asn Gln Arg Leu Lys Ala Ala Asn
               245   250   255

Phe Lys Ser Glu Pro Arg Trp Asp Phe Glu Glu Lys Tyr Ser Phe
               260   265   270

Glu Ile Gly Gly Leu Gln Thr Thr Cys Pro Asp Ser Val Lys Ile
               275   280   285

Lys Ala Ser Lys Ser Leu Trp Leu Gln Lys Leu Phe Leu Pro Asn
               290   295   300

Leu Thr Leu Phe Leu Asp Ser Arg His Phe Asn Gln Ser Glu Trp
               305   310   315

Asp Arg Leu Glu His Phe Ala Pro Pro Phe Gly Phe Met Glu Leu
               320   325   330

Asn Tyr Ser Leu Val Gln Lys Val Val Thr Arg Phe Pro Pro Val
               335   340   345

Pro Gln Gln Gln Leu Leu Leu Ala Ser Leu Pro Ala Gly Ser Leu
               350   355   360

Arg Cys Ile Thr Cys Ala Val Val Gly Asn Gly Gly Ile Leu Asn
               365   370   375

Asn Ser His Met Gly Gln Glu Ile Asp Ser His Asp Tyr Val Phe

```
Arg Leu Ser Gly Ala Leu Ile Lys Gly Tyr Glu Gln Asp Val Gly
                395                400                405

Thr Arg Thr Ser Phe Tyr Gly Phe Thr Ala Phe Ser Leu Thr Gln
                410                415                420

Ser Leu Leu Ile Leu Gly Asn Arg Gly Phe Lys Asn Val Pro Leu
                425                430                435

Gly Lys Asp Val Arg Tyr Leu His Phe Leu Glu Gly Thr Arg Asp
                440                445                450

Tyr Glu Trp Leu Glu Ala Leu Leu Met Asn Gln Thr Val Met Ser
                455                460                465

Lys Asn Leu Phe Trp Phe Arg His Arg Pro Gln Glu Ala Phe Arg
                470                475                480

Glu Ala Leu His Met Asp Arg Tyr Leu Leu Leu His Pro Asp Phe
                485                490                495

Leu Arg Tyr Met Lys Asn Arg Phe Leu Arg Ser Lys Thr Leu Asp
                500                505                510

Gly Ala His Trp Arg Ile Tyr Arg Pro Thr Thr Gly Ala Leu Leu
                515                520                525

Leu Leu Thr Ala Leu Gln Leu Cys Asp Gln Val Ser Ala Tyr Gly
                530                535                540

Phe Ile Thr Glu Gly His Glu Arg Phe Ser Asp His Tyr Tyr Asp
                545                550                555

Thr Ser Trp Lys Arg Leu Ile Phe Tyr Ile Asn His Asp Phe Lys
                560                565                570

Leu Glu Arg Glu Val Trp Lys Arg Leu His Asp Glu Gly Ile Ile
                575                580                585

Arg Leu Tyr Gln Arg Pro Gly Pro Gly Thr Ala Lys Ala Lys Asn
                590                595                600
```

<210> 348
<211> 496
<212> DNA
<213> Homo sapiens

<400> 348

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cgatgcgcgg acccgggcac cccctcctcc tggggctgct gctggtgctg 50

gggccttcgc cggagcagcg agtggaaatt gttcctcgag atctgaggat 100

gaaggacaag tttctaaaac accttacagg ccctctttat tttagtccaa 150

agtgcagcaa acacttccat agactttatc acaacaccag agactgcacc 200

attcctgcat actataaaag atgcgccagg cttcttaccc ggctggctgt 250

cagtccagtg tgcatggagg ataagtgagc agaccgtaca ggagcagcac 300

accaggagcc atgagaagtg ccttggaaac caacagggaa acagaactat 350
```

```
ctttatacac atcccctcat ggacaagaga tttatttttg cagacagact 400

cttccataag tcctttgagt tttgtatgtt gttgacagtt tgcagatata 450

tattcgataa atcagtgtac ttgacagtgt tatctgtcac ttattt 496
```

```
<210> 349
<211> 91
<212> PRT
<213> Homo sapiens
```

```
<400> 349
 Met Arg Gly Pro Gly His Pro Leu Leu Leu Gly Leu Leu Leu Val
 1               5                   10                  15

 Leu Gly Pro Ser Pro Glu Gln Arg Val Glu Ile Val Pro Arg Asp
                 20                  25                  30

 Leu Arg Met Lys Asp Lys Phe Leu Lys His Leu Thr Gly Pro Leu
                 35                  40                  45

 Tyr Phe Ser Pro Lys Cys Ser Lys His Phe His Arg Leu Tyr His
                 50                  55                  60

 Asn Thr Arg Asp Cys Thr Ile Pro Ala Tyr Tyr Lys Arg Cys Ala
                 65                  70                  75

 Arg Leu Leu Thr Arg Leu Ala Val Ser Pro Val Cys Met Glu Asp
                 80                  85                  90

 Lys
```

```
<210> 350
<211> 1141
<212> DNA
<213> Homo sapiens
```

```
<400> 350
 gggctgggcc ccgccgcagc tccagctggc cggcttggtc ctgcggtccc 50

 ttctctggga ggcccgaccc cggccgcgcc cagcccccac catgccaccc 100

 gcggggctcc gccgggccgc gccgctcacc gcaatcgctc tgttggtgct 150

 gggggctccc ctggtgctgg ccggcgagga ctgcctgtgg tacctggacc 200

 ggaatggctc ctggcatccg gggtttaact gcgagttctt caccttctgc 250

 tgcgggacct gctaccatcg gtactgctgc agggacctga ccttgcttat 300

 caccgagagg cagcagaagc actgcctggc cttcagcccc aagaccatag 350

 caggcatcgc ctcagctgtg atcctctttg ttgctgtggt tgccaccacc 400

 atctgctgct tcctctgttc ctgttgctac ctgtaccgcc ggcgccagca 450

 gctccagagc ccatttgaag gccaggagat tccaatgaca ggcatcccag 500

 tgcagccagt atacccatac ccccaggacc ccaaagctgg ccctgcaccc 550

 ccacagcctg gcttcatgta cccacctagt ggtcctgctc cccaatatcc 600
```

```
actctaccca gctgggcccc cagtctacaa ccctgcagct cctcctccct 650

atatgccacc acagccctct tacccgggag cctgaggaac cagccatgtc 700

tctgctgccc cttcagtgat gccaaccttg ggagatgccc tcatcctgta 750

cctgcatctg gtcctggggg tggcaggagt cctccagcca ccaggcccca 800

gaccaagcca agccctgggc cctactgggg acagagcccc agggaagtgg 850

aacaggagct gaactagaac tatgaggggt tggggggagg gcttggaatt 900

atgggctatt tttactgggg gcaagggagg gagatgacag cctgggtcac 950

agtgcctgtt ttcaaatagt ccctctgctc ccaagatccc agccaggaag 1000

gctggggccc tactgtttgt cccctctggg ctggggtggg gggagggagg 1050

aggttccgtc agcagctggc agtagccctc ctctctggct gccccactgg 1100

ccacatctct ggcctgctag attaaagctg taaagacaaa a 1141
```

<210> 351
<211> 197
<212> PRT
<213> Homo sapiens

<400> 351

```
Met Pro Pro Ala Gly Leu Arg Arg Ala Ala Pro Leu Thr Ala Ile
 1               5                  10                  15

Ala Leu Leu Val Leu Gly Ala Pro Leu Val Leu Ala Gly Glu Asp
                20                  25                  30

Cys Leu Trp Tyr Leu Asp Arg Asn Gly Ser Trp His Pro Gly Phe
                35                  40                  45

Asn Cys Glu Phe Phe Thr Phe Cys Cys Gly Thr Cys Tyr His Arg
                50                  55                  60

Tyr Cys Cys Arg Asp Leu Thr Leu Leu Ile Thr Glu Arg Gln Gln
                65                  70                  75

Lys His Cys Leu Ala Phe Ser Pro Lys Thr Ile Ala Gly Ile Ala
                80                  85                  90

Ser Ala Val Ile Leu Phe Val Ala Val Val Ala Thr Thr Ile Cys
                95                  100                 105

Cys Phe Leu Cys Ser Cys Cys Tyr Leu Tyr Arg Arg Arg Gln Gln
                110                 115                 120

Leu Gln Ser Pro Phe Glu Gly Gln Glu Ile Pro Met Thr Gly Ile
                125                 130                 135

Pro Val Gln Pro Val Tyr Pro Tyr Pro Gln Asp Pro Lys Ala Gly
                140                 145                 150

Pro Ala Pro Pro Gln Pro Gly Phe Met Tyr Pro Pro Ser Gly Pro
                155                 160                 165

Ala Pro Gln Tyr Pro Leu Tyr Pro Ala Gly Pro Pro Val Tyr Asn
                170                 175                 180
```

305

Pro Ala Ala Pro Pro Pro Tyr Met Pro Pro Gln Pro Ser Tyr Pro
                185   190   195

Gly Ala

<210> 352
<211> 3226
<212> DNA
<213> Homo sapiens

<400> 352
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 gcggccccag aaccccaggt aggtagagca agaagatggt gtttctgccc 100

 ctcaaatggt cccttgcaac catgtcattt ctactttcct cactgttggc 150

 tctcttaact gtgtccactc cttcatggtg tcagagcact gaagcatctc 200

 caaaacgtag tgatgggaca ccatttcctt ggaataaaat acgacttcct 250

 gagtacgtca tcccagttca ttatgatctc ttgatccatg caaaccttac 300

 cacgctgacc ttctggggaa ccacgaaagt agaaatcaca gccagtcagc 350

 ccaccagcac catcatcctg catagtcacc acctgcagat atctagggcc 400

 accctcagga agggagctgg agagaggcta tcggaagaac ccctgcaggt 450

 cctggaacac ccccctcagg agcaaattgc actgctggct cccgagcccc 500

 tccttgtcgg gctcccgtac acagttgtca ttcactatgc tggcaatctt 550

 tcggagactt ccacggatt ttacaaaagc acctacagaa ccaaggaagg 600

 ggaactgagg atactagcat caacacaatt tgaacccact gcagctagaa 650

 tggcctttcc ctgctttgat gaacctgcct tcaaagcaag tttctcaatc 700

 aaaattagaa gagagccaag gcacctagcc atctccaata tgccattggt 750

 gaaatctgtg actgttgctg aaggactcat agaagaccat tttgatgtca 800

 ctgtgaagat gagcacctat ctggtggcct tcatcatttc agattttgag 850

 tctgtcagca agataaccaa gagtggagtc aaggtttctg tttatgctgt 900

 gccagacaag ataaatcaag cagattatgc actggatgct gcggtgactc 950

 ttctagaatt ttatgaggat tatttcagca taccgtatcc cctacccaaa 1000

 caagatcttg ctgctattcc cgactttcag tctggtgcta tggaaaactg 1050

 gggactgaca acatatagag aatctgctct gttgtttgat gcagaaaagt 1100

 cttctgcatc aagtaagctt ggcatcacag tgactgtggc ccatgaactg 1150

 gcccaccagt ggtttgggaa cctggtcact atggaatggt ggaatgatct 1200

 ttggctaaat gaaggatttg ccaaatttat ggagtttgtg tctgtcagtg 1250

 tgacccatcc tgaactgaaa gttggagatt atttctttgg caaatgtttt 1300

306

```
gacgcaatgg aggtagatgc tttaaattcc tcacaccctg tgtctacacc 1350

tgtggaaaat cctgctcaga tccgggagat gtttgatgat gtttcttatg 1400

ataagggagc ttgtattctg aatatgctaa gggagtatct tagcgctgac 1450

gcatttaaaa gtggtattgt acagtatctc cagaagcata gctataaaaa 1500

tacaaaaaac gaggacctgt gggatagtat ggcaagtatt tgccctacag 1550

atggtgtaaa agggatggat ggcttttgct ctagaagtca acattcatct 1600

tcatcctcac attggcatca ggaaggggtg gatgtgaaaa ccatgatgaa 1650

cacttggaca ctgcagaggg gttttcccct aataaccatc acagtgaggg 1700

ggaggaatgt acacatgaag caagagcact acatgaaggg ctctgacggc 1750

gccccggaca ctgggtacct gtggcatgtt ccattgacat tcatcaccag 1800

caaatccaac atggtccatc gatttttgct aaaaacaaaa acagatgtgc 1850

tcatcctccc agaagaggtg gaatggatca aatttaatgt gggcatgaat 1900

ggctattaca ttgtgcatta cgaggatgat ggatgggact ctttgactgg 1950

ccttttaaaa ggaacacaca cagcagtcag cagtaatgat cgggcaagtc 2000

tcattaacaa tgcatttcag ctcgtcagca ttgggaagct gtccattgaa 2050

aaggccttgg atttatccct gtacttgaaa catgaaactg aaattatgcc 2100

cgtgtttcaa ggtttgaatg agctgattcc tatgtataag ttaatggaga 2150

aaagagatat gaatgaagtg gaaactcaat tcaaggcctt cctcatcagg 2200

ctgctaaggg acctcattga taagcagaca tggacagacg agggctcagt 2250

ctcagagcaa atgctgcgga gtgaactact actcctcgcc tgtgtgcaca 2300

actatcagcc gtgcgtacag agggcagaag gctatttcag aaagtggaag 2350

gaatccaatg gaaacttgag cctgcctgtc gacgtgacct tggcagtgtt 2400

tgctgtgggg gcccagagca cagaaggctg ggattttctt tatagtaaat 2450

atcagttttc tttgtccagt actgagaaaa gccaaattga atttgccctc 2500

tgcagaaccc aaaataagga aaagcttcaa tggctactag atgaaagctt 2550

taagggagat aaaataaaaa ctcaggagtt tccacaaatt cttacactca 2600

ttggcaggaa cccagtagga tacccactgg cctggcaatt tctgaggaaa 2650

aactggaaca aacttgtaca aaagtttgaa cttggctcat cttccatagc 2700

ccacatggta atgggtacaa caaatcaatt ctccacaaga cacggcttg 2750

aagaggtaaa aggattcttc agctctttga aagaaaatgg ttctcagctc 2800

cgttgtgtcc aacagacaat tgaaaccatt gaagaaaaca tcggttggat 2850

ggataagaat tttgataaaa tcagagtgtg gctgcaaagt gaaaagcttg 2900
```

307

```
aacgtatgta aaaattcctc ccttgcccgg ttcctgttat ctctaatcac 2950

caacattttg ttgagtgtat tttcaaacta gagatggctg ttttggctcc 3000

aactggagat actttttccc cttcaactca tttttgact atccctgtga 3050

aaagaatagc tgttagtttt tcatgaatgg gctttttcat gaatgggcta 3100

tcgctaccat gtgttttgtt catcacaggt gttgccctgc aacgtaaacc 3150

caagtgttgg gttccctgcc acagaagaat aaagtacctt attcttctca 3200

aaaaaaaaaa aaaaaaaaaa aaaaaa 3226
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<210> 353
<211> 941
<212> PRT
<213> Homo sapiens

<400> 353
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Met Val Phe Leu Pro Leu Lys Trp Ser Leu Ala Thr Met Ser Phe
1               5                   10                  15

Leu Leu Ser Ser Leu Leu Ala Leu Leu Thr Val Ser Thr Pro Ser
                20                  25                  30

Trp Cys Gln Ser Thr Glu Ala Ser Pro Lys Arg Ser Asp Gly Thr
                35                  40                  45

Pro Phe Pro Trp Asn Lys Ile Arg Leu Pro Glu Tyr Val Ile Pro
                50                  55                  60

Val His Tyr Asp Leu Leu Ile His Ala Asn Leu Thr Thr Leu Thr
                65                  70                  75

Phe Trp Gly Thr Thr Lys Val Glu Ile Thr Ala Ser Gln Pro Thr
                80                  85                  90

Ser Thr Ile Ile Leu His Ser His His Leu Gln Ile Ser Arg Ala
                95                  100                 105

Thr Leu Arg Lys Gly Ala Gly Glu Arg Leu Ser Glu Glu Pro Leu
                110                 115                 120

Gln Val Leu Glu His Pro Pro Gln Glu Gln Ile Ala Leu Leu Ala
                125                 130                 135

Pro Glu Pro Leu Leu Val Gly Leu Pro Tyr Thr Val Val Ile His
                140                 145                 150

Tyr Ala Gly Asn Leu Ser Glu Thr Phe His Gly Phe Tyr Lys Ser
                155                 160                 165

Thr Tyr Arg Thr Lys Glu Gly Glu Leu Arg Ile Leu Ala Ser Thr
                170                 175                 180

Gln Phe Glu Pro Thr Ala Ala Arg Met Ala Phe Pro Cys Phe Asp
                185                 190                 195

Glu Pro Ala Phe Lys Ala Ser Phe Ser Ile Lys Ile Arg Arg Glu
                200                 205                 210

Pro Arg His Leu Ala Ile Ser Asn Met Pro Leu Val Lys Ser Val
```

308

```
              215                220                225
Thr Val Ala Glu Gly Leu Ile Glu Asp His Phe Asp Val Thr Val
              230                235                240
Lys Met Ser Thr Tyr Leu Val Ala Phe Ile Ile Ser Asp Phe Glu
              245                250                255
Ser Val Ser Lys Ile Thr Lys Ser Gly Val Lys Val Ser Val Tyr
              260                265                270
Ala Val Pro Asp Lys Ile Asn Gln Ala Asp Tyr Ala Leu Asp Ala
              275                280                285
Ala Val Thr Leu Leu Glu Phe Tyr Glu Asp Tyr Phe Ser Ile Pro
              290                295                300
Tyr Pro Leu Pro Lys Gln Asp Leu Ala Ala Ile Pro Asp Phe Gln
              305                310                315
Ser Gly Ala Met Glu Asn Trp Gly Leu Thr Thr Tyr Arg Glu Ser
              320                325                330
Ala Leu Leu Phe Asp Ala Glu Lys Ser Ser Ala Ser Ser Lys Leu
              335                340                345
Gly Ile Thr Val Thr Val Ala His Glu Leu Ala His Gln Trp Phe
              350                355                360
Gly Asn Leu Val Thr Met Glu Trp Trp Asn Asp Leu Trp Leu Asn
              365                370                375
Glu Gly Phe Ala Lys Phe Met Glu Phe Val Ser Val Ser Val Thr
              380                385                390
His Pro Glu Leu Lys Val Gly Asp Tyr Phe Phe Gly Lys Cys Phe
              395                400                405
Asp Ala Met Glu Val Asp Ala Leu Asn Ser Ser His Pro Val Ser
              410                415                420
Thr Pro Val Glu Asn Pro Ala Gln Ile Arg Glu Met Phe Asp Asp
              425                430                435
Val Ser Tyr Asp Lys Gly Ala Cys Ile Leu Asn Met Leu Arg Glu
              440                445                450
Tyr Leu Ser Ala Asp Ala Phe Lys Ser Gly Ile Val Gln Tyr Leu
              455                460                465
Gln Lys His Ser Tyr Lys Asn Thr Lys Asn Glu Asp Leu Trp Asp
              470                475                480
Ser Met Ala Ser Ile Cys Pro Thr Asp Gly Val Lys Gly Met Asp
              485                490                495
Gly Phe Cys Ser Arg Ser Gln His Ser Ser Ser Ser His Trp
              500                505                510
His Gln Glu Gly Val Asp Val Lys Thr Met Met Asn Thr Trp Thr
              515                520                525
Leu Gln Arg Gly Phe Pro Leu Ile Thr Ile Thr Val Arg Gly Arg

                           309
```

```
                530                      535                      540

Asn Val His Met Lys Gln Glu His Tyr Met Lys Gly Ser Asp Gly
                545                      550                      555

Ala Pro Asp Thr Gly Tyr Leu Trp His Val Pro Leu Thr Phe Ile
                560                      565                      570

Thr Ser Lys Ser Asn Met Val His Arg Phe Leu Leu Lys Thr Lys
                575                      580                      585

Thr Asp Val Leu Ile Leu Pro Glu Glu Val Glu Trp Ile Lys Phe
                590                      595                      600

Asn Val Gly Met Asn Gly Tyr Tyr Ile Val His Tyr Glu Asp Asp
                605                      610                      615

Gly Trp Asp Ser Leu Thr Gly Leu Leu Lys Gly Thr His Thr Ala
                620                      625                      630

Val Ser Ser Asn Asp Arg Ala Ser Leu Ile Asn Asn Ala Phe Gln
                635                      640                      645

Leu Val Ser Ile Gly Lys Leu Ser Ile Glu Lys Ala Leu Asp Leu
                650                      655                      660

Ser Leu Tyr Leu Lys His Glu Thr Glu Ile Met Pro Val Phe Gln
                665                      670                      675

Gly Leu Asn Glu Leu Ile Pro Met Tyr Lys Leu Met Glu Lys Arg
                680                      685                      690

Asp Met Asn Glu Val Glu Thr Gln Phe Lys Ala Phe Leu Ile Arg
                695                      700                      705

Leu Leu Arg Asp Leu Ile Asp Lys Gln Thr Trp Thr Asp Glu Gly
                710                      715                      720

Ser Val Ser Glu Gln Met Leu Arg Ser Glu Leu Leu Leu Leu Ala
                725                      730                      735

Cys Val His Asn Tyr Gln Pro Cys Val Gln Arg Ala Glu Gly Tyr
                740                      745                      750

Phe Arg Lys Trp Lys Glu Ser Asn Gly Asn Leu Ser Leu Pro Val
                755              .               760                      765

Asp Val Thr Leu Ala Val Phe Ala Val Gly Ala Gln Ser Thr Glu
                770                      775                      780

Gly Trp Asp Phe Leu Tyr Ser Lys Tyr Gln Phe Ser Leu Ser Ser
                785                      790                      795

Thr Glu Lys Ser Gln Ile Glu Phe Ala Leu Cys Arg Thr Gln Asn
                800                      805                      810

Lys Glu Lys Leu Gln Trp Leu Leu Asp Glu Ser Phe Lys Gly Asp
                815                      820                      825

Lys Ile Lys Thr Gln Glu Phe Pro Gln Ile Leu Thr Leu Ile Gly
                830                      835                      840

Arg Asn Pro Val Gly Tyr Pro Leu Ala Trp Gln Phe Leu Arg Lys
```

Asn Trp Asn Lys Leu Val Gln Lys Phe Glu Leu Gly Ser Ser Ser
                860   865   870

Ile Ala His Met Val Met Gly Thr Thr Asn Gln Phe Ser Thr Arg
                875   880   885

Thr Arg Leu Glu Glu Val Lys Gly Phe Phe Ser Ser Leu Lys Glu
                890   895   900

Asn Gly Ser Gln Leu Arg Cys Val Gln Gln Thr Ile Glu Thr Ile
                905   910   915

Glu Glu Asn Ile Gly Trp Met Asp Lys Asn Phe Asp Lys Ile Arg
                920   925   930

Val Trp Leu Gln Ser Glu Lys Leu Glu Arg Met
                935   940

<210> 354
<211> 1587
<212> DNA
<213> Homo sapiens

<400> 354
cagccacaga cgggtcatga gcgcggtatt actgctggcc ctcctggggt 50

tcatcctccc actgccagga gtgcaggcgc tgctctgcca gtttgggaca 100

gttcagcatg tgtggaaggt gtccgaccta ccccggcaat ggacccctaa 150

gaacaccagc tgcgacagcg gcttggggtg ccaggacacg ttgatgctca 200

ttgagagcgg accccaagtg agcctggtgc tctccaaggg ctgcacggag 250

gccaaggacc aggagccccg cgtcactgag caccggatgg gccccggcct 300

ctccctgatc tcctacacct tcgtgtgccg ccaggaggac ttctgcaaca 350

acctcgttaa ctccctcccg ctttgggccc cacagccccc agcagaccca 400

ggatccttga ggtgcccagt ctgcttgtct atggaaggct gtctggaggg 450

gacaacagaa gagatctgcc ccaaggggac cacacactgt tatgatggcc 500

tcctcaggct caggggagga ggcatcttct ccaatctgag agtccaggga 550

tgcatgcccc agccaggttg caacctgctc aatgggcacac aggaaattgg 600

gcccgtgggt atgactgaga actgcaatag gaaagatttt ctgacctgtc 650

atcgggggac caccattatg acacacggaa acttggctca agaacccact 700

gattggacca catcgaatac cgagatgtgc gaggtggggc aggtgtgtca 750

ggagacgctg ctgctcatag atgtaggact cacatcaacc ctggtgggga 800

caaaaggctg cagcactgtt ggggctcaaa attcccagaa gaccaccatc 850

cactcagccc ctcctggggt gcttgtggcc tcctataccc acttctgctc 900

ctcggacctg tgcaatagtg ccagcagcag cagcgttctg ctgaactccc 950

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tccctcctca agctgcccct gtcccaggag accggcagtg tcctacctgt 1000

gtgcagcccc ttggaacctg ttcaagtggc tcccccccgaa tgacctgccc 1050

caggggcgcc actcattgtt atgatgggta cattcatctc tcaggaggtg 1100

ggctgtccac caaaatgagc attcagggct gcgtggccca accttccagc 1150

ttcttgttga accacaccag acaaatcggg atcttctctg cgcgtgagaa 1200

gcgtgatgtg cagcctcctg cctctcagca tgagggaggt ggggctgagg 1250

gcctggagtc tctcacttgg ggggtggggc tggcactggc cccagcgctg 1300

tggtggggag tggtttgccc ttcctgctaa ctctattacc cccacgattc 1350

ttcaccgctg ctgaccaccc acactcaacc tccctctgac ctcataacct 1400

aatggccttg gacaccagat tctttcccat tctgtccatg aatcatcttc 1450

cccacacaca atcattcata tctactcacc taacagcaac actgggagga 1500

gcctggagca tccggacttg ccctatggga gagggacgc tggaggagtg 1550

gctgcatgta tctgataata cagaccctgt cctttca 1587
```

<210> 355
<211> 437
<212> PRT
<213> Homo sapiens

<400> 355

```
Met Ser Ala Val Leu Leu Leu Ala Leu Leu Gly Phe Ile Leu Pro
 1               5                  10                  15

Leu Pro Gly Val Gln Ala Leu Leu Cys Gln Phe Gly Thr Val Gln
                20                  25                  30

His Val Trp Lys Val Ser Asp Leu Pro Arg Gln Trp Thr Pro Lys
                35                  40                  45

Asn Thr Ser Cys Asp Ser Gly Leu Gly Cys Gln Asp Thr Leu Met
                50                  55                  60

Leu Ile Glu Ser Gly Pro Gln Val Ser Leu Val Leu Ser Lys Gly
                65                  70                  75

Cys Thr Glu Ala Lys Asp Gln Glu Pro Arg Val Thr Glu His Arg
                80                  85                  90

Met Gly Pro Gly Leu Ser Leu Ile Ser Tyr Thr Phe Val Cys Arg
                95                  100                 105

Gln Glu Asp Phe Cys Asn Asn Leu Val Asn Ser Leu Pro Leu Trp
                110                 115                 120

Ala Pro Gln Pro Pro Ala Asp Pro Gly Ser Leu Arg Cys Pro Val
                125                 130                 135

Cys Leu Ser Met Glu Gly Cys Leu Glu Gly Thr Thr Glu Glu Ile
                140                 145                 150

Cys Pro Lys Gly Thr Thr His Cys Tyr Asp Gly Leu Leu Arg Leu
```

```
                  155                    160                        165
Arg Gly Gly Gly Ile Phe Ser Asn Leu Arg Val Gln Gly Cys Met
                  170                    175                        180
Pro Gln Pro Gly Cys Asn Leu Leu Asn Gly Thr Gln Glu Ile Gly
                  185                    190                        195
Pro Val Gly Met Thr Glu Asn Cys Asn Arg Lys Asp Phe Leu Thr
                  200                    205                        210
Cys His Arg Gly Thr Thr Ile Met Thr His Gly Asn Leu Ala Gln
                  215                    220                        225
Glu Pro Thr Asp Trp Thr Thr Ser Asn Thr Glu Met Cys Glu Val
                  230                    235                        240
Gly Gln Val Cys Gln Glu Thr Leu Leu Leu Ile Asp Val Gly Leu
                  245                    250                        255
Thr Ser Thr Leu Val Gly Thr Lys Gly Cys Ser Thr Val Gly Ala
                  260                    265                        270
Gln Asn Ser Gln Lys Thr Thr Ile His Ser Ala Pro Pro Gly Val
                  275                    280                        285
Leu Val Ala Ser Tyr Thr His Phe Cys Ser Ser Asp Leu Cys Asn
                  290                    295                        300
Ser Ala Ser Ser Ser Val Leu Leu Asn Ser Leu Pro Pro Gln
                  305                    310                        315
Ala Ala Pro Val Pro Gly Asp Arg Gln Cys Pro Thr Cys Val Gln
                  320                    325                        330
Pro Leu Gly Thr Cys Ser Ser Gly Ser Pro Arg Met Thr Cys Pro
                  335                    340                        345
Arg Gly Ala Thr His Cys Tyr Asp Gly Tyr Ile His Leu Ser Gly
                  350                    355                        360
Gly Gly Leu Ser Thr Lys Met Ser Ile Gln Gly Cys Val Ala Gln
                  365                    370                        375
Pro Ser Ser Phe Leu Leu Asn His Thr Arg Gln Ile Gly Ile Phe
                  380                    385                        390
Ser Ala Arg Glu Lys Arg Asp Val Gln Pro Pro Ala Ser Gln His
                  395                    400                        405
Glu Gly Gly Gly Ala Glu Gly Leu Glu Ser Leu Thr Trp Gly Val
                  410                    415                        420
Gly Leu Ala Leu Ala Pro Ala Leu Trp Trp Gly Val Val Cys Pro
                  425                    430                        435
Ser Cys

<210> 356
<211> 1238
<212> DNA
<213> Homo sapiens

                              313
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<400> 356

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gcgacgggca ggacgccccg ttcgcctagc gcgtgctcag gagttggtgt 50
cctgcctgcg ctcaggatga gggggaatct ggccctggtg ggcgttctaa 100
tcagcctggc cttcctgtca ctgctgccat ctggacatcc tcagccggct 150
ggcgatgacg cctgctctgt gcagatcctc gtccctggcc tcaaaggggga 200
tgcgggagag aagggagaca aaggcgcccc cggacggcct ggaagagtcg 250
gccccacggg agaaaaagga gacatggggg acaaaggaca gaaaggcagt 300
gtgggtcgtc atggaaaaat tggtcccatt ggctctaaag gtgagaaagg 350
agattccggt gacataggac cccctggtcc taatggagaa ccaggcctcc 400
catgtgagtg cagccagctg cgcaaggcca tcgggagat ggacaaccag 450
gtctctcagc tgaccagcga gctcaagttc atcaagaatg ctgtcgccgg 500
tgtgcgcgag acggagagca agatctacct gctggtgaag gaggagaagc 550
gctacgcgga cgcccagctg tcctgccagg gccgcggggg cacgctgagc 600
atgcccaagg acgaggctgc caatggcctg atggccgcat acctggcgca 650
agccggcctg gcccgtgtct tcatcggcat caacgacctg gagaaggagg 700
gcgccttcgt gtactctgac cactccccca tgcggacctt caacaagtgg 750
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ccattggggg ccccacatgt ccctgcaggg ttggcaggga cagagcccag 950
accatggtgc cagccaggga gctgtccctc tgtgaagggt ggaggctcac 1000
tgagtagagg gctgttgtct aaactgagaa aatggcctat gcttaagagg 1050
aaaatgaaag tgttcctggg gtgctgtctc tgaagaagca gagtttcatt 1100
acctgtattg tagccccaat gtcattatgt aattattacc cagaattgct 1150
cttccataaa gcttgtgcct ttgtccaagc tatacaataa aatctttaag 1200
tagtgcagta gttaagtcca aaaaaaaaa aaaaaaa 1238
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<210> 357
<211> 271
<212> PRT
<213> Homo sapiens

<400> 357

```
Met Arg Gly Asn Leu Ala Leu Val Gly Val Leu Ile Ser Leu Ala
 1               5                  10                  15

Phe Leu Ser Leu Leu Pro Ser Gly His Pro Gln Pro Ala Gly Asp
                20                  25                  30
```

```
Asp Ala Cys Ser Val Gln Ile Leu Val Pro Gly Leu Lys Gly Asp
                35                  40                      45

Ala Gly Glu Lys Gly Asp Lys Gly Ala Pro Gly Arg Pro Gly Arg
                50                  55                      60

Val Gly Pro Thr Gly Glu Lys Gly Asp Met Gly Asp Lys Gly Gln
                65                  70                      75

Lys Gly Ser Val Gly Arg His Gly Lys Ile Gly Pro Ile Gly Ser
                80                  85                      90

Lys Gly Glu Lys Gly Asp Ser Gly Asp Ile Gly Pro Pro Gly Pro
                95                  100                     105

Asn Gly Glu Pro Gly Leu Pro Cys Glu Cys Ser Gln Leu Arg Lys
                110                 115                     120

Ala Ile Gly Glu Met Asp Asn Gln Val Ser Gln Leu Thr Ser Glu
                125                 130                     135

Leu Lys Phe Ile Lys Asn Ala Val Ala Gly Val Arg Glu Thr Glu
                140                 145                     150

Ser Lys Ile Tyr Leu Leu Val Lys Glu Glu Lys Arg Tyr Ala Asp
                155                 160                     165

Ala Gln Leu Ser Cys Gln Gly Arg Gly Gly Thr Leu Ser Met Pro
                170                 175                     180

Lys Asp Glu Ala Ala Asn Gly Leu Met Ala Ala Tyr Leu Ala Gln
                185                 190                     195

Ala Gly Leu Ala Arg Val Phe Ile Gly Ile Asn Asp Leu Glu Lys
                200                 205                     210

Glu Gly Ala Phe Val Tyr Ser Asp His Ser Pro Met Arg Thr Phe
                215                 220                     225

Asn Lys Trp Arg Ser Gly Glu Pro Asn Asn Ala Tyr Asp Glu Glu
                230                 235                     240

Asp Cys Val Glu Met Val Ala Ser Gly Gly Trp Asn Asp Val Ala
                245                 250                     255

Cys His Thr Thr Met Tyr Phe Met Cys Glu Phe Asp Lys Glu Asn
                260                 265                     270

Met


<210> 358
<211> 972
<212> DNA
<213> Homo sapiens

<400> 358
 agtgactgca gccttcctag atcccctcca ctcggtttct ctctttgcag 50

 gagcaccggc agcaccagtg tgtgagggga gcaggcagcg gtcctagcca 100

 gttccttgat cctgccagac cacccagccc ccggcacaga gctgctccac 150
```

315

```
aggcaccatg aggatcatgc tgctattcac agccatcctg gccttcagcc 200

tagctcagag ctttggggct gtctgtaagg agccacagga ggaggtggtt 250

cctggcgggg gccgcagcaa gagggatcca gatctctacc agctgctcca 300

gagactcttc aaaagccact catctctgga gggattgctc aaagccctga 350

gccaggctag cacagatcct aaggaatcaa catctcccga gaaacgtgac 400

atgcatgact tctttgtggg acttatgggc aagaggagcg tccagccaga 450

gggaaagaca ggacctttct taccttcagt gagggttcct cggccccttc 500

atcccaatca gcttggatcc acaggaaagt cttccctggg aacagaggag 550

cagagacctt tataagactc tcctacggat gtgaatcaag agaacgtccc 600

cagctttggc atcctcaagt atcccccgag agcagaatag gtactccact 650

tccggactcc tggactgcat taggaagacc tctttccctg tcccaatccc 700

caggtgcgca cgctcctgtt acccttctc ttccctgttc ttgtaacatt 750

cttgtgcttt gactccttct ccatcttttc tacctgaccc tggtgtggaa 800

actgcatagt gaatatcccc aaccccaatg ggcattgact gtagaatacc 850

ctagagttcc tgtagtgtcc tacattaaaa atataatgtc tctctctatt 900

cctcaacaat aaaggatttt tgcatatgaa aaaaaaaaa aaaaaaaaa 950

aaaaaaaaaa aaaaaaaaaa aa 972
```

<210> 359
<211> 135
<212> PRT
<213> Homo sapiens

<400> 359
```
Met Arg Ile Met Leu Leu Phe Thr Ala Ile Leu Ala Phe Ser Leu
  1               5                  10                  15

Ala Gln Ser Phe Gly Ala Val Cys Lys Glu Pro Gln Glu Glu Val
                 20                  25                  30

Val Pro Gly Gly Gly Arg Ser Lys Arg Asp Pro Asp Leu Tyr Gln
                 35                  40                  45

Leu Leu Gln Arg Leu Phe Lys Ser His Ser Ser Leu Glu Gly Leu
                 50                  55                  60

Leu Lys Ala Leu Ser Gln Ala Ser Thr Asp Pro Lys Glu Ser Thr
                 65                  70                  75

Ser Pro Glu Lys Arg Asp Met His Asp Phe Phe Val Gly Leu Met
                 80                  85                  90

Gly Lys Arg Ser Val Gln Pro Glu Gly Lys Thr Gly Pro Phe Leu
                 95                  100                 105

Pro Ser Val Arg Val Pro Arg Pro Leu His Pro Asn Gln Leu Gly
                 110                 115                 120
```

316

```
Ser Thr Gly Lys Ser Ser Leu Gly Thr Glu Glu Gln Arg Pro Leu
                125                     130                 135


<210> 360
<211> 1738
<212> DNA
<213> Homo sapiens

<400> 360
 gggcgtctcc ggctgctcct attgagctgt ctgctcgctg tgcccgctgt 50

 gcctgctgtg cccgcgctgt cgccgctgct accgcgtctg ctggacgcgg 100

 gagacgccag cgagctggtg attggagccc tgcggagagc tcaagcgccc 150

 agctctgccc caggagccca ggctgccccg tgagtcccat agttgctgca 200

 ggagtggagc catgagctgc gtcctgggtg gtgtcatccc cttggggctg 250

 ctgttcctgg tctgcggatc ccaaggctac ctcctgccca acgtcactct 300

 cttagaggag ctgctcagca aataccagca caacgagtct cactcccggg 350

 tccgcagagc catccccagg gaggacaagg aggagatcct catgctgcac 400

 aacaagcttc ggggccaggt gcagcctcag gcctccaaca tggagtacat 450

 ggtgagcgcc ggctccggcc gcagaggctg gcaccggggg tggggcctgg 500

 gccaccagcc tgctctgttc cccagccagc tctgttcccc agccagtgcg 550

 tgtgatggct ggctcagggt ctcctctggc aggggaggat cccggctctg 600

 ttctgttttg tttgtttgtt ttgagacagg gtctcactct gccactgacg 650

 ctggagtgca atggcacaat cgtcatgccc tgaaacctta gactcccggg 700

 gttaagcgat cctgcttcag cctcccaagt agctggaact acaggcatgc 750

 accatggtgc ccagctagat tttaaatatt ttgtggagat ggggtcttg 800

 ctacgttgcc caggctggtc ttgaactcct aggctcaagc aatcctcctg 850

 cctcagcctc tcaaagtgct aggattatag gcatgagtca ccctgtctgg 900

 ctctggctct gttcttaaca ttctgccaaa acaacacacg tgggttccct 950

 gtgcagagcc tgcctcgttg ccttcatgtc actcttggta gctccactgg 1000

 gaacacagct ctcagccttt cccacctgga ggcagagtgg ggaggggccc 1050

 agggctgggc tttgctgatg ctgatctcag ctgtgccaca cgctagctgc 1100

 accaccctga cttctcctta gcccgtgtga gcctcacttt ccacttggag 1150

 agtccttcct cgcgtggttg ccatgactgt gagataagtc gaggctgtga 1200

 agggcccggc acagactgac ctgcctcccc aacccctagg ctttgctaac 1250

 cgggaaagga gctaacggtg acagaagaca gccaaggtca accctcccgg 1300

 gtgattgtga tgggtgttcc aggtgtggtt gggcgatgct gctacttgac 1350
```

```
cccaagctcc agtgtggaaa cttccttcct ggctggtttt ccagaactac 1400

agaggaatgg accacagtct tccagggtcc ctcctcgtcc accaaccggg 1450

agcctccacc ttggccatcc gtcagctatg aatggctttt taaacaaacc 1500

cacgtcccag cctgggtaac atggtaaagc cccgtctcta caaaaaaatc 1550

caagttagcc gggcatggtg gtgcgcacct gtagtcccag ctgcagtggg 1600

actgaggtgg aggtggaggt gggggtggg agctgaggaa ggaggatcgc 1650

ttgagcctgg gaagtcgagg ctgcagtgag ctgagattgc accactgcac 1700

tccagcctgg gtgacagagc aagaccctgt ctcaaaaa 1738
```

<210> 361
<211> 159
<212> PRT
<213> Homo sapiens

<400> 361
```
Met Ser Cys Val Leu Gly Gly Val Ile Pro Leu Gly Leu Leu Phe
  1               5                  10                  15

Leu Val Cys Gly Ser Gln Gly Tyr Leu Leu Pro Asn Val Thr Leu
             20                  25                  30

Leu Glu Glu Leu Leu Ser Lys Tyr Gln His Asn Glu Ser His Ser
             35                  40                  45

Arg Val Arg Arg Ala Ile Pro Arg Glu Asp Lys Glu Glu Ile Leu
             50                  55                  60

Met Leu His Asn Lys Leu Arg Gly Gln Val Gln Pro Gln Ala Ser
             65                  70                  75

Asn Met Glu Tyr Met Val Ser Ala Gly Ser Gly Arg Arg Gly Trp
             80                  85                  90

His Arg Gly Trp Gly Leu Gly His Gln Pro Ala Leu Phe Pro Ser
             95                 100                 105

Gln Leu Cys Ser Pro Ala Ser Ala Cys Asp Gly Trp Leu Arg Val
            110                 115                 120

Ser Ser Gly Arg Gly Gly Ser Arg Leu Cys Ser Val Leu Phe Val
            125                 130                 135

Cys Phe Glu Thr Gly Ser His Ser Ala Thr Asp Ala Gly Val Gln
            140                 145                 150

Trp His Asn Arg His Ala Leu Lys Pro
                155
```

<210> 362
<211> 422
<212> DNA
<213> Homo sapiens

<400> 362
```
aaggagaggc caccgggact tcagtgtctc ctccatccca ggagcgcagt 50
```

318

```
ggccactatg gggtctgggc tgccccttgt cctcctcttg accctccttg 100

gcagctcaca tggaacaggg ccgggtatga ctttgcaact gaagctgaag 150

gagtcttttc tgacaaattc ctcctatgag tccagcttcc tggaattgct 200

tgaaaagctc tgcctcctcc tccatctccc ttcagggacc agcgtcaccc 250

tccaccatgc aagatctcaa caccatgttg tctgcaacac atgacagcca 300

ttgaagcctg tgtccttctt ggcccgggct tttgggccgg ggatgcagga 350

ggcaggcccc gaccctgtct ttcagcaggc ccccacccctc ctgagtggca 400

ataaataaaa ttcggtatgc tg 422
```

<210> 363
<211> 78
<212> PRT
<213> Homo sapiens

<400> 363
```
Met Gly Ser Gly Leu Pro Leu Val Leu Leu Leu Thr Leu Leu Gly
  1               5                  10                  15

Ser Ser His Gly Thr Gly Pro Gly Met Thr Leu Gln Leu Lys Leu
                 20                  25                  30

Lys Glu Ser Phe Leu Thr Asn Ser Ser Tyr Glu Ser Ser Phe Leu
                 35                  40                  45

Glu Leu Leu Glu Lys Leu Cys Leu Leu Leu His Leu Pro Ser Gly
                 50                  55                  60

Thr Ser Val Thr Leu His His Ala Arg Ser Gln His His Val Val
                 65                  70                  75

Cys Asn Thr
```

<210> 364
<211> 826
<212> DNA
<213> Homo sapiens

<400> 364
```
aattgtatct gtgtaatgtt aaaacaaacg aaataaaata gaaggaaaaa 50

ctttctgagt ttcaaaaaca acagactagt actctaaaga actctttaaa 100

acaattaact gttaggattg cagttatgat tggatattat ttaattctgt 150

ttctgatgtg gggttcctcc actgtgttct gtgtgctatt aatatttacc 200

attgcagaag cttcattcag tgttgaaaat gaatgcttag tggatctgtg 250

cctcttacgc atatgttaca aattatctgg agttcctaat caatgcagag 300

ttcccctccc ctccgattgt tctaaataat tgaaagatgt ctgctgtgga 350

aaaaggcatg tatttaaatc tgtatgattc tcaaccatct ttagttggga 400

aaggtccttg aaagccaatg gaaatacttt ttttttttct tggcactaat 450
```

319

```
caagtgagtg ttaccttttc acttagtagg atgtgttgtt acgctagtaa 500

aatagaaacc tgtgtttatt ctcaggtatt ttagaaacaa cagccatcat 550

tttattttat gtgtgtgttc ttggctgtat tcataaatta tatattttgg 600

gctatcaaat attacttcat tcaatataaa taacaatagt agaagttgtt 650

tacttagata tgctttctag ttgcattttc tcagcctatg taagactact 700

ttgttgtaat agcctttgaa atttacagta ctgtctctct actatcttca 750

gattacttga ttcaaataaa ccaattatgt ttgtaattga tattaataaa 800

accagaataa aagttcatat ctaccc 826
```

<210> 365
<211> 67
<212> PRT
<213> Homo sapiens

<400> 365
```
Met Ile Gly Tyr Tyr Leu Ile Leu Phe Leu Met Trp Gly Ser Ser
 1               5                  10                  15

Thr Val Phe Cys Val Leu Leu Ile Phe Thr Ile Ala Glu Ala Ser
                20                  25                  30

Phe Ser Val Glu Asn Glu Cys Leu Val Asp Leu Cys Leu Leu Arg
                35                  40                  45

Ile Cys Tyr Lys Leu Ser Gly Val Pro Asn Gln Cys Arg Val Pro
                50                  55                  60

Leu Pro Ser Asp Cys Ser Lys
                65
```

<210> 366
<211> 2475
<212> DNA
<213> Homo sapiens

<400> 366
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gaggatttgc cacagcagcg gatagagcag gagagcacca ccggagccct 50

tgagacatcc ttgagaagag ccacagcata agagactgcc ctgcttggtg 100

ttttgcagga tgatggtggc ccttcgagga gcttctgcat tgctggttct 150

gttccttgca gcttttctgc ccccgccgca gtgtacccag gacccagcca 200

tggtgcatta catctaccag cgctttcgag tcttggagca agggctggaa 250

aaatgtaccc aagcaacgag ggcatacatt caagaattcc aagagttctc 300

aaaaaatata tctgtcatgc tgggaagatg tcagacctac acaagtgagt 350

acaagagtgc agtgggtaac ttggcactga gagttgaacg tgcccaacgg 400

gagattgact acatacaata ccttcgagag gctgacgagt gcatcgtatc 450

agaggacaag acactggcag aaatgttgct ccaagaagct gaagaagaga 500
```

```
aaaagatccg gactctgctg aatgcaagct gtgacaacat gctgatgggc 550

ataaagtctt tgaaaatagt gaagaagatg atggacacac atggctcttg 600

gatgaaagat gctgtctata actctccaaa ggtgtactta ttaattggat 650

ccagaaacaa cactgtttgg gaatttgcaa acatacgggc attcatggag 700

gataacacca agccagctcc ccggaagcaa atcctaacac tttcctggca 750

gggaacaggc caagtgatct acaaaggttt tctatttttt cataaccaag 800

caacttctaa tgagataatc aaatataacc tgcagaagag gactgtggaa 850

gatcgaatgc tgctcccagg aggggtaggc cgagcattgg tttaccagca 900

ctccccctca acttacattg acctggctgt ggatgagcat gggctctggg 950

ccatccactc tgggccaggc acccatagcc atttggttct cacaaagatt 1000

gagccgggca cactgggagt ggagcattca tgggataccc catgcagaag 1050

ccaggatgct gaagcctcat tcctcttgtg tggggttctc tatgtggtct 1100

acagtactgg gggccagggc cctcatcgca tcacctgcat ctatgatcca 1150

ctgggcacta tcagtgagga ggacttgccc aacttgttct tccccaagag 1200

accaagaagt cactccatga tccattacaa ccccagagat aagcagctct 1250

atgcctggaa tgaaggaaac cagatcattt acaaactcca gacaaagaga 1300

aagctgcctc tgaagtaatg cattacagct gtgagaaaga gcactgtggc 1350

tttggcagct gttctacagg acagtgaggc tatagcccct tcacaatata 1400

gtatccctct aatcacacac aggaagagtg tgtagaagtg gaaatacgta 1450

tgcctccttt cccaaatgtc actgccttag gtatcttcca agagcttaga 1500

tgagagcata tcatcaggaa agtttcaaca atgtccatta ctcccccaaa 1550

cctcctggct ctcaaggatg accacattct gatacagcct acttcaagcc 1600

ttttgtttta ctgctcccca gcatttactg taactctgcc atcttccctc 1650

ccacaattag agttgtatgc cagcccctaa tattcaccac tggcttttct 1700

ctcccctggc ctttgctgaa gctcttccct ctttttcaaa tgtctattga 1750

tattctccca ttttcactgc ccaactaaaa tactattaat atttctttct 1800

tttcttttct ttttttttgag acaaggtctc actatgttgc ccaggctggt 1850

ctcaaactcc agagctcaag agatcctcct gcctcagcct cctaagtacc 1900

tgggattaca ggcatgtgcc accacacctg gcttaaaata ctatttctta 1950

ttgaggttta acctctattt cccctagccc tgtccttcca ctaagcttgg 2000

tagatgtaat aataaagtga aaatattaac atttgaatat cgctttccag 2050

gtgtggagtg tttgcacatc attgaattct cgtttcacct ttgtgaaaca 2100
```

321

```
tgcacaagtc tttacagctg tcattctaga gtttaggtga gtaacacaat 2150

tacaaagtga aagatacagc tagaaaatac tacaaatccc atagtttttc 2200

cattgcccaa ggaagcatca aatacgtatg tttgttcacc tactcttata 2250

gtcaatgcgt tcatcgtttc agcctaaaaa taatagtctg tccctttagc 2300

cagttttcat gtctgcacaa gacctttcaa taggcctttc aaatgataat 2350

tcctccagaa aaccagtcta agggtgagga ccccaactct agcctcctct 2400

tgtcttgctg tcctctgttt ctctctttct gctttaaatt caataaaagt 2450

gacactgagc aaaaaaaaaa aaaaa 2475
```

<210> 367
<211> 402
<212> PRT
<213> Homo sapiens

<400> 367

```
Met Met Val Ala Leu Arg Gly Ala Ser Ala Leu Leu Val Leu Phe
 1               5                  10                  15

Leu Ala Ala Phe Leu Pro Pro Pro Gln Cys Thr Gln Asp Pro Ala
             20                  25                  30

Met Val His Tyr Ile Tyr Gln Arg Phe Arg Val Leu Glu Gln Gly
             35                  40                  45

Leu Glu Lys Cys Thr Gln Ala Thr Arg Ala Tyr Ile Gln Glu Phe
             50                  55                  60

Gln Glu Phe Ser Lys Asn Ile Ser Val Met Leu Gly Arg Cys Gln
             65                  70                  75

Thr Tyr Thr Ser Glu Tyr Lys Ser Ala Val Gly Asn Leu Ala Leu
             80                  85                  90

Arg Val Glu Arg Ala Gln Arg Glu Ile Asp Tyr Ile Gln Tyr Leu
             95                 100                 105

Arg Glu Ala Asp Glu Cys Ile Val Ser Glu Asp Lys Thr Leu Ala
            110                 115                 120

Glu Met Leu Leu Gln Glu Ala Glu Glu Lys Lys Ile Arg Thr
            125                 130                 135

Leu Leu Asn Ala Ser Cys Asp Asn Met Leu Met Gly Ile Lys Ser
            140                 145                 150

Leu Lys Ile Val Lys Lys Met Met Asp Thr His Gly Ser Trp Met
            155                 160                 165

Lys Asp Ala Val Tyr Asn Ser Pro Lys Val Tyr Leu Leu Ile Gly
            170                 175                 180

Ser Arg Asn Asn Thr Val Trp Glu Phe Ala Asn Ile Arg Ala Phe
            185                 190                 195

Met Glu Asp Asn Thr Lys Pro Ala Pro Arg Lys Gln Ile Leu Thr
            200                 205                 210
```

322

```
Leu Ser Trp Gln Gly Thr Gly Gln Val Ile Tyr Lys Gly Phe Leu
                215             220                     225

Phe Phe His Asn Gln Ala Thr Ser Asn Glu Ile Ile Lys Tyr Asn
                230             235                     240

Leu Gln Lys Arg Thr Val Glu Asp Arg Met Leu Leu Pro Gly Gly
                245             250                     255

Val Gly Arg Ala Leu Val Tyr Gln His Ser Pro Ser Thr Tyr Ile
                260             265                     270

Asp Leu Ala Val Asp Glu His Gly Leu Trp Ala Ile His Ser Gly
                275             280                     285

Pro Gly Thr His Ser His Leu Val Leu Thr Lys Ile Glu Pro Gly
                290             295                     300

Thr Leu Gly Val Glu His Ser Trp Asp Thr Pro Cys Arg Ser Gln
                305             310                     315

Asp Ala Glu Ala Ser Phe Leu Leu Cys Gly Val Leu Tyr Val Val
                320             325                     330

Tyr Ser Thr Gly Gly Gln Gly Pro His Arg Ile Thr Cys Ile Tyr
                335             340                     345

Asp Pro Leu Gly Thr Ile Ser Glu Glu Asp Leu Pro Asn Leu Phe
                350             355                     360

Phe Pro Lys Arg Pro Arg Ser His Ser Met Ile His Tyr Asn Pro
                365             370                     375

Arg Asp Lys Gln Leu Tyr Ala Trp Asn Glu Gly Asn Gln Ile Ile
                380             385                     390

Tyr Lys Leu Gln Thr Lys Arg Lys Leu Pro Leu Lys
                395             400
```

<210> 368
<211> 2281
<212> DNA
<213> Homo sapiens

<400> 368

```
gggcgcccgc gtactcacta gctgaggtgg cagtggttcc accaacatgg 50

agctctcgca gatgtcggag ctcatggggc tgtcggtgtt gcttgggctg 100

ctggccctga tggcgacggc ggcggtagcg cggggtggc tgcgcgcggg 150

ggaggagagg agcggccggc ccgcctgcca aaaagcaaat ggatttccac 200

ctgacaaatc ttcgggatcc aagaagcaga aacaatatca gcggattcgg 250

aaggagaagc ctcaacaaca caacttcacc caccgcctcc tggctgcagc 300

tctgaagagc cacagcggga acatatcttg catggacttt agcagcaatg 350

gcaaatacct ggctacctgt gcagatgatc gcaccatccg catctggagc 400

accaaggact tcctgcagcg agagcaccgc agcatgagag ccaacgtgga 450
```

323

```
gctggaccac gccaccctgg tgcgcttcag ccctgactgc agagccttca 500

tcgtctggct ggccaacggg gacaccctcc gtgtcttcaa gatgaccaag 550

cgggaggatg ggggctacac cttcacagcc accccagagg acttccctaa 600

aaagcacaag gcgcctgtca tcgacattgg cattgctaac acagggaagt 650

ttatcatgac tgcctccagt gacaccactg tcctcatctg gagcctgaag 700

ggtcaagtgc tgtctaccat caacaccaac cagatgaaca acacacacgc 750

tgctgtatct ccctgtggca gatttgtagc ctcgtgtggc ttcaccccag 800

atgtgaaggt ttgggaagtc tgctttggaa agaaggggga gttccaggag 850

gtggtgcgag ccttcgaact aaagggccac tccgcggctg tgcactcgtt 900

tgctttctcc aacgactcac ggaggatggc ttctgtctcc aaggatggta 950

catggaaact gtgggacaca gatgtggaat acaagaagaa gcaggacccc 1000

tacttgctga agacaggccg ctttgaagag gcggcgggtg ccgcgccgtg 1050

ccgcctggcc ctctcccca acgcccaggt cttggccttg gccagtggca 1100

gtagtattca tctctacaat acccggcggg gcgagaagga ggagtgcttt 1150

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gcccggcgca gaggattgag gaggagggat ctggcctcct catggcactg 1450

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ttcttactgg tggccctgct tcttcccatt gaaactactc ttgtctactt 1550

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actgaggaga atggtagaga ggagaggaga gagagagaga atgtgatttt 1700

tggccttgtg gcagcacatc ctcacaccca aagaagtttg taaatgttcc 1750

agaacaacct agagaacacc tgagtactaa gcagcagttt tgcaaggatg 1800

ggagactggg atagcttccc atcacagaac tgtgttccat caaaaagaca 1850

ctaagggatt tccttctggg cctcagttct atttgtaaga tggagaataa 1900

tcctctctgt gaactccttg caaagatgat atgaggctaa gagaatatca 1950

agtccccagg tctggaagaa aagtagaaaa gagtagtact attgtccaat 2000

gtcatgaaag tggtaaaagt gggaaccagt gtgctttgaa accaaattag 2050
```

324

```
aaacacattc cttgggaagg caaagttttc tgggacttga tcatacattt 2100

tatatggttg ggacttctct cttcgggaga tgatatcttg tttaaggaga 2150

cctcttttca gttcatcaag ttcatcagat atttgagtgc ccactctgtg 2200

cccaaataaa tatgagctgg ggattaaaaa aaaaaaaaaa aaaaaaaaaa 2250

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2281
```

<210> 369
<211> 447
<212> PRT
<213> Homo sapiens

<400> 369

```
Met Glu Leu Ser Gln Met Ser Glu Leu Met Gly Leu Ser Val Leu
 1               5                  10                  15

Leu Gly Leu Leu Ala Leu Met Ala Thr Ala Ala Val Ala Arg Gly
                20                  25                  30

Trp Leu Arg Ala Gly Glu Glu Arg Ser Gly Arg Pro Ala Cys Gln
                35                  40                  45

Lys Ala Asn Gly Phe Pro Pro Asp Lys Ser Ser Gly Ser Lys Lys
                50                  55                  60

Gln Lys Gln Tyr Gln Arg Ile Arg Lys Glu Lys Pro Gln Gln His
                65                  70                  75

Asn Phe Thr His Arg Leu Leu Ala Ala Ala Leu Lys Ser His Ser
                80                  85                  90

Gly Asn Ile Ser Cys Met Asp Phe Ser Ser Asn Gly Lys Tyr Leu
                95                  100                 105

Ala Thr Cys Ala Asp Asp Arg Thr Ile Arg Ile Trp Ser Thr Lys
                110                 115                 120

Asp Phe Leu Gln Arg Glu His Arg Ser Met Arg Ala Asn Val Glu
                125                 130                 135

Leu Asp His Ala Thr Leu Val Arg Phe Ser Pro Asp Cys Arg Ala
                140                 145                 150

Phe Ile Val Trp Leu Ala Asn Gly Asp Thr Leu Arg Val Phe Lys
                155                 160                 165

Met Thr Lys Arg Glu Asp Gly Gly Tyr Thr Phe Thr Ala Thr Pro
                170                 175                 180

Glu Asp Phe Pro Lys Lys His Lys Ala Pro Val Ile Asp Ile Gly
                185                 190                 195

Ile Ala Asn Thr Gly Lys Phe Ile Met Thr Ala Ser Ser Asp Thr
                200                 205                 210

Thr Val Leu Ile Trp Ser Leu Lys Gly Gln Val Leu Ser Thr Ile
                215                 220                 225

Asn Thr Asn Gln Met Asn Asn Thr His Ala Ala Val Ser Pro Cys
                230                 235                 240
```

```
Gly Arg Phe Val Ala Ser Cys Gly Phe Thr Pro Asp Val Lys Val
                245                     250                 255

Trp Glu Val Cys Phe Gly Lys Lys Gly Glu Phe Gln Glu Val Val
                260                     265                 270

Arg Ala Phe Glu Leu Lys Gly His Ser Ala Ala Val His Ser Phe
                275                     280                 285

Ala Phe Ser Asn Asp Ser Arg Arg Met Ala Ser Val Ser Lys Asp
                290                     295                 300

Gly Thr Trp Lys Leu Trp Asp Thr Asp Val Glu Tyr Lys Lys Lys
                305                     310                 315

Gln Asp Pro Tyr Leu Leu Lys Thr Gly Arg Phe Glu Glu Ala Ala
                320                     325                 330

Gly Ala Ala Pro Cys Arg Leu Ala Leu Ser Pro Asn Ala Gln Val
                335                     340                 345

Leu Ala Leu Ala Ser Gly Ser Ser Ile His Leu Tyr Asn Thr Arg
                350                     355                 360

Arg Gly Glu Lys Glu Glu Cys Phe Glu Arg Val His Gly Glu Cys
                365                     370                 375

Ile Ala Asn Leu Ser Phe Asp Ile Thr Gly Arg Phe Leu Ala Ser
                380                     385                 390

Cys Gly Asp Arg Ala Val Arg Leu Phe His Asn Thr Pro Gly His
                395                     400                 405

Arg Ala Met Val Glu Glu Met Gln Gly His Leu Lys Arg Ala Ser
                410                     415                 420

Asn Glu Ser Thr Arg Gln Arg Leu Gln Gln Gln Leu Thr Gln Ala
                425                     430                 435

Gln Glu Thr Leu Lys Ser Leu Gly Ala Leu Lys Lys
                440                     445
```

<210> 370
<211> 1415
<212> DNA
<213> Homo sapiens

<400> 370

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tggcctcccc agcttgccag gcacaaggct gagcgggagg aagcgagagg 50

catctaagca ggcagtgttt tgccttcacc ccaagtgacc atgagaggtg 100

ccacgcgagt ctcaatcatg ctcctcctag taactgtgtc tgactgtgct 150

gtgatcacag gggcctgtga gcgggatgtc cagtgtgggg caggcacctg 200

ctgtgccatc agcctgtggc ttcgagggct gcggatgtgc accccgctgg 250

ggcgggaagg cgaggagtgc cacccccggca gccacaaggt ccccttcttc 300

aggaaacgca agcaccacac ctgtccttgc ttgcccaacc tgctgtgctc 350

caggttcccg gacggcaggt accgctgctc catggacttg aagaacatca 400
```

```
atttttaggc gcttgcctgg tctcaggata cccaccatcc ttttcctgag 450

cacagcctgg atttttattt ctgccatgaa acccagctcc catgactctc 500

ccagtcccta cactgactac cctgatctct cttgtctagt acgcacatat 550

gcacacaggc agacatacct cccatcatga catggtcccc aggctggcct 600

gaggatgtca cagcttgagg ctgtggtgtg aaaggtggcc agcctggttc 650

tcttccctgc tcaggctgcc agagaggtgg taaatggcag aaaggacatt 700

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aatcagcccc ctgaagactc tggtcccagt cagcctgtgg cttgtggcct 1050

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accacacttt accagttaac cactgaagcc cccaattccc acagctttc 1150

cattaaaatg caaatggtgg tggttcaatc taatctgata ttgacatatt 1200

agaaggcaat tagggtgttt ccttaaacaa ctcctttcca aggatcagcc 1250

ctgagagcag gttggtgact ttgaggaggg cagtcctctg tccagattgg 1300

ggtgggagca agggacaggg agcagggcag gggctgaaag gggcactgat 1350

tcagaccagg gaggcaacta cacaccaaca tgctggcttt agaataaaag 1400

caccaactga aaaaa 1415

<210> 371
<211> 105
<212> PRT
<213> Homo sapiens

<400> 371
Met Arg Gly Ala Thr Arg Val Ser Ile Met Leu Leu Leu Val Thr
1               5                   10                  15

Val Ser Asp Cys Ala Val Ile Thr Gly Ala Cys Glu Arg Asp Val
                20                  25                  30

Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile Ser Leu Trp Leu Arg
                35                  40                  45

Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu Gly Glu Glu Cys
                50                  55                  60

His Pro Gly Ser His Lys Val Pro Phe Phe Arg Lys Arg Lys His
                65                  70                  75
```

327

```
His Thr Cys Pro Cys Leu Pro Asn Leu Leu Cys Ser Arg Phe Pro
                80                      85                  90

Asp Gly Arg Tyr Arg Cys Ser Met Asp Leu Lys Asn Ile Asn Phe
                95                     100                 105
```

<210> 372
<211> 1281
<212> DNA
<213> Homo sapiens

<400> 372

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agcgcccggg cgtcggggcg gtaaaaggcc ggcagaaggg aggcacttga 50

gaaatgtctt tcctccagga cccaagtttc ttcaccatgg ggatgtggtc 100

cattggtgca ggagccctgg gggctgctgc cttggcattg ctgcttgcca 150

acacagacgt gtttctgtcc aagcccccaga aagcggccct ggagtacctg 200

gaggatatag acctgaaaac actggagaag gaaccaagga ctttcaaagc 250

aaaggagcta tgggaaaaaa atggagctgt gattatggcc gtgcggaggc 300

caggctgttt cctctgtcga gaggaagctg cggatctgtc ctccctgaaa 350

agcatgttgg accagctggg cgtccccctc tatgcagtgg taaaggagca 400

catcaggact gaagtgaagg atttccagcc ttatttcaaa ggagaaatct 450

tcctggatga aaagaaaaag ttctatggtc cacaaaggcg gaagatgatg 500

tttatgggat ttatccgtct gggagtgtgg tacaacttct tccgagcctg 550

gaacggaggc ttctctggaa acctggaagg agaaggcttc atccttgggg 600

gagttttcgt ggtgggatca ggaaagcagg gcattcttct tgagcaccga 650

gaaaaagaat ttggagacaa agtaaaccta ctttctgttc tggaagctgc 700

taagatgatc aaaccacaga ctttggcctc agagaaaaaa tgattgtgtg 750

aaactgccca gctcagggat aaccagggac attcacctgt gttcatggga 800

tgtattgttt ccactcgtgt ccctaaggag tgagaaaccc atttatactc 850

tactctcagt atggattatt aatgtatttt aatattctgt ttaggcccac 900

taaggcaaaa tagccccaaa acaagactga caaaaatctg aaaaactaat 950

gaggattatt aagctaaaac ctgggaaata ggaggcttaa aattgactgc 1000

caggctgggt gcagtggctc acacctgtaa tcccagcact ttgggaggcc 1050

aaggtgagca agtcacttga ggtcgggagt tcgagaccag cctgagcaac 1100

atggcgaaac cccgtctcta ctaaaaatac aaaaatcacc cgggtgtggt 1150

ggcaggcacc tgtagtccca gctacccggg aggctgaggc aggagaatca 1200

cttgaacctg ggaggtggag gttgcggtga gctgagatca caccactgta 1250

ttccagcctg ggtgactgag actctaacta a 1281
```

328

<210> 373
<211> 229
<212> PRT
<213> Homo sapiens

<400> 373

```
Met Ser Phe Leu Gln Asp Pro Ser Phe Phe Thr Met Gly Met Trp
  1               5                  10                  15

Ser Ile Gly Ala Gly Ala Leu Gly Ala Ala Ala Leu Ala Leu Leu
               20                  25                  30

Leu Ala Asn Thr Asp Val Phe Leu Ser Lys Pro Gln Lys Ala Ala
               35                  40                  45

Leu Glu Tyr Leu Glu Asp Ile Asp Leu Lys Thr Leu Glu Lys Glu
               50                  55                  60

Pro Arg Thr Phe Lys Ala Lys Glu Leu Trp Glu Lys Asn Gly Ala
               65                  70                  75

Val Ile Met Ala Val Arg Arg Pro Gly Cys Phe Leu Cys Arg Glu
               80                  85                  90

Glu Ala Ala Asp Leu Ser Ser Leu Lys Ser Met Leu Asp Gln Leu
               95                 100                 105

Gly Val Pro Leu Tyr Ala Val Val Lys Glu His Ile Arg Thr Glu
              110                 115                 120

Val Lys Asp Phe Gln Pro Tyr Phe Lys Gly Glu Ile Phe Leu Asp
              125                 130                 135

Glu Lys Lys Lys Phe Tyr Gly Pro Gln Arg Arg Lys Met Met Phe
              140                 145                 150

Met Gly Phe Ile Arg Leu Gly Val Trp Tyr Asn Phe Phe Arg Ala
              155                 160                 165

Trp Asn Gly Gly Phe Ser Gly Asn Leu Glu Gly Glu Gly Phe Ile
              170                 175                 180

Leu Gly Gly Val Phe Val Val Gly Ser Gly Lys Gln Gly Ile Leu
              185                 190                 195

Leu Glu His Arg Glu Lys Glu Phe Gly Asp Lys Val Asn Leu Leu
              200                 205                 210

Ser Val Leu Glu Ala Ala Lys Met Ile Lys Pro Gln Thr Leu Ala
              215                 220                 225

Ser Glu Lys Lys
```

<210> 374
<211> 744
<212> DNA
<213> Homo sapiens

<400> 374

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acggaccgag ggttcgaggg agggacacgg accaggaacc tgagctaggt 50

caaagacgcc cgggccaggt gccccgtcgc aggtgcccct ggccggagat 100
```

329

```
gcggtaggag gggcgagcgc gagaagcccc ttcctcggcg ctgccaaccc 150

gccacccagc ccatggcgaa ccccgggctg gggctgcttc tggcgctggg 200

cctgccgttc ctgctggccc gctggggccg agcctggggg caaatacaga 250

ccacttctgc aaatgagaat agcactgttt tgccttcatc caccagctcc 300

agctccgatg gcaacctgcg tccggaagcc atcactgcta tcatcgtggt 350

cttctccctc ttggctgcct tgctcctggc tgtggggctg gcactgttgg 400

tgcggaagct tcgggagaag cggcagacgg agggcaccta ccggcccagt 450

agcgaggagc agttctccca tgcagccgag gcccgggccc tcaggactc 500

caaggagacg gtgcagggct gcctgcccat ctaggtcccc tctcctgcat 550

ctgtctccct tcattgctgt gtgaccttgg ggaaaggcag tgccctctct 600

gggcagtcag atccacccag tgcttaatag cagggaagaa ggtacttcaa 650

agactctgcc cctgaggtca agagaggatg gggctattca cttttatata 700

tttatataaa attagtagtg agatgtaaaa aaaaaaaaa aaaa 744
```

<210> 375
<211> 123
<212> PRT
<213> Homo sapiens

<400> 375

```
Met Ala Asn Pro Gly Leu Gly Leu Leu Ala Leu Gly Leu Pro
 1               5                  10                  15

Phe Leu Leu Ala Arg Trp Gly Arg Ala Trp Gly Gln Ile Gln Thr
               20                  25                  30

Thr Ser Ala Asn Glu Asn Ser Thr Val Leu Pro Ser Ser Thr Ser
               35                  40                  45

Ser Ser Ser Asp Gly Asn Leu Arg Pro Glu Ala Ile Thr Ala Ile
               50                  55                  60

Ile Val Val Phe Ser Leu Leu Ala Ala Leu Leu Leu Ala Val Gly
               65                  70                  75

Leu Ala Leu Leu Val Arg Lys Leu Arg Glu Lys Arg Gln Thr Glu
               80                  85                  90

Gly Thr Tyr Arg Pro Ser Ser Glu Glu Gln Phe Ser His Ala Ala
               95                  100                 105

Glu Ala Arg Ala Pro Gln Asp Ser Lys Glu Thr Val Gln Gly Cys
               110                 115                 120

Leu Pro Ile
```

<210> 376
<211> 713
<212> DNA
<213> Homo sapiens

<400> 376

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aatatatcat ctatttatca ttaatcaata atgtattctt ttattccaat 50

aacatttggg ttttgggatt ttaattttca aacacagcag aatgacattt 100

tttctgtcac tattattatt gttggtatgt gaagctattt ggagatccaa 150

ttcaggaagc aacacattgg agaatggcta ctttctatca agaaataaag 200

agaaccacag tcaacccaca caatcatctt tagaagacag tgtgactcct 250

accaaagctg tcaaaaccac aggcaagggc atagttaaag gacggaatct 300

tgactcaaga gggttaattc ttggtgctga agcctggggc aggggtgtaa 350

agaaaaacac ttagattcaa tgattgtaaa tttaaggcaa atacacatat 400

tagtattacc ttagtgtaat gtatccctgt catatataca ataaggtgaa 450

attataagta ccctatgcag ttggctggac agttctaaat tggactttat 500

taatttttaa aatcagtaac tgatttatca ctggctatgt gcttagatct 550

acaggagatc atataatttg atacaaataa aagaaaagtg ttctctcccc 600

ttacagaatt gacattttaa atgcgataca gttagaatag gaaatatgac 650

attagaaagg aagaatgaca gggagaaagg aaagaaggga aaatgttgcc 700

aaggaaaaaa aaa 713
```

<210> 377
<211> 90
<212> PRT
<213> Homo sapiens

<400> 377

```
Met Thr Phe Phe Leu Ser Leu Leu Leu Leu Leu Val Cys Glu Ala
  1               5                  10                  15

Ile Trp Arg Ser Asn Ser Gly Ser Asn Thr Leu Glu Asn Gly Tyr
                 20                  25                  30

Phe Leu Ser Arg Asn Lys Glu Asn His Ser Gln Pro Thr Gln Ser
                 35                  40                  45

Ser Leu Glu Asp Ser Val Thr Pro Thr Lys Ala Val Lys Thr Thr
                 50                  55                  60

Gly Lys Gly Ile Val Lys Gly Arg Asn Leu Asp Ser Arg Gly Leu
                 65                  70                  75

Ile Leu Gly Ala Glu Ala Trp Gly Arg Gly Val Lys Lys Asn Thr
                 80                  85                  90
```

<210> 378
<211> 3265
<212> DNA
<213> Homo sapiens

<400> 378

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gccaggaata actagagagg aacaatgggg ttattcagag gttttgtttt 50
```

```
cctcttagtt ctgtgcctgc tgcaccagtc aaatacttcc ttcattaagc 100

tgaataataa tggctttgaa gatattgtca ttgttataga tcctagtgtg 150

ccagaagatg aaaaaataat tgaacaaata gaggatatgg tgactacagc 200

ttctacgtac ctgtttgaag ccacagaaaa aagatttttt ttcaaaaatg 250

tatctatatt aattcctgag aattggaagg aaaatcctca gtacaaaagg 300

ccaaaacatg aaaaccataa acatgctgat gttatagttg caccacctac 350

actcccaggt agagatgaac catacaccaa gcagttcaca gaatgtggag 400

agaaaggcga atacattcac ttcacccctg accttctact tggaaaaaaa 450

caaaatgaat atggaccacc aggcaaactg tttgtccatg agtgggctca 500

cctccggtgg ggagtgtttg atgagtacaa tgaagatcag cctttctacc 550

gtgctaagtc aaaaaaaatc gaagcaacaa ggtgttccgc aggtatctct 600

ggtagaaata gagtttataa gtgtcaagga ggcagctgtc ttagtagagc 650

atgcagaatt gattctacaa caaaactgta tggaaaagat tgtcaattct 700

ttcctgataa agtacaaaca gaaaaagcat ccataatgtt tatgcaaagt 750

attgattctg ttgttgaatt ttgtaacgaa aaaacccata atcaagaagc 800

tccaagccta caaaacataa agtgcaattt tagaagtaca tgggaggtga 850

ttagcaattc tgaggatttt aaaaacacca tacccatggt gacaccacct 900

cctccacctg tcttctcatt gctgaagatc agtcaaagaa ttgtgtgctt 950

agttcttgat aagtctggaa gcatgggggg taaggaccgc ctaaatcgaa 1000

tgaatcaagc agcaaaacat ttcctgctgc agactgttga aaatggatcc 1050

tgggtgggga tggttcactt tgatagtact gccactattg taaataagct 1100

aatccaaata aaaagcagtg atgaaagaaa cacactcatg gcaggattac 1150

ctacatatcc tctgggagga acttccatct gctctggaat taaatatgca 1200

tttcaggtga ttggagagct acattcccaa ctcgatggat ccgaagtact 1250

gctgctgact gatggggagg ataacactgc aagttcttgt attgatgaag 1300

tgaaacaaag tggggccatt gttcatttta ttgctttggg aagagctgct 1350

gatgaagcag taatagagat gagcaagata acaggaggaa gtcattttta 1400

tgtttcagat gaagctcaga acaatggcct cattgatgct tttgggggctc 1450

ttacatcagg aaatactgat ctctcccaga agtcccttca gctcgaaagt 1500

aaggattaa cactgaatag taatgcctgg atgaacgaca ctgtcataat 1550

tgatagtaca gtgggaaagg acacgttctt tctcatcaca tggaacagtc 1600

tgcctcccag tatttctctc tgggatccca gtggaacaat aatggaaaat 1650
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ttcacagtgg atgcaacttc caaaatggcc tatctcagta ttccaggaac 1700

tgcaaaggtg ggcacttggg catacaatct tcaagccaaa gcgaacccag 1750

aaacattaac tattacagta acttctcgag cagcaaattc ttctgtgcct 1800

ccaatcacag tgaatgctaa aatgaataag gacgtaaaca gtttccccag 1850

cccaatgatt gtttacgcag aaattctaca aggatatgta cctgttcttg 1900

gagccaatgt gactgctttc attgaatcac agaatggaca tacagaagtt 1950

ttggaacttt tggataatgg tgcaggcgct gattctttca agaatgatgg 2000

agtctactcc aggtattta cagcatatac agaaaatggc agatatagct 2050

taaaagttcg ggctcatgga ggagcaaaca ctgccaggct aaaattacgg 2100

cctccactga atagagccgc gtacatacca ggctgggtag tgaacgggga 2150

aattgaagca aacccgccaa gacctgaaat tgatgaggat actcagacca 2200

ccttggagga tttcagccga acagcatccg gaggtgcatt tgtggtatca 2250

caagtcccaa gccttccctt gcctgaccaa tacccaccaa gtcaaatcac 2300

agaccttgat gccacagttc atgaggataa gattattctt acatggacag 2350

caccaggaga taattttgat gttggaaaag ttcaacgtta tatcataaga 2400

ataagtgcaa gtattcttga tctaagagac agttttgatg atgctcttca 2450

agtaaatact actgatctgt caccaaagga ggccaactcc aaggaaagct 2500

ttgcatttaa accagaaaat atctcagaag aaaatgcaac ccacatattt 2550

attgccatta aaagtataga taaaagcaat ttgacatcaa aagtatccaa 2600

cattgcacaa gtaactttgt ttatccctca agcaaatcct gatgacattg 2650

atcctacacc tactcctact cctactccta ctcctgataa aagtcataat 2700

tctggagtta atatttctac gctggtattg tctgtgattg ggtctgttgt 2750

aattgttaac tttatttaa gtaccaccat ttgaacctta acgaagaaaa 2800

aaatcttcaa gtagacctag aagagagttt taaaaaacaa aacaatgtaa 2850

gtaaaggata tttctgaatc ttaaaattca tcccatgtgt gatcataaac 2900

tcataaaaat aattttaaga tgtcggaaaa ggatactttg attaaataaa 2950

aacactcatg gatatgtaaa aactgtcaag attaaaattt aatagtttca 3000

tttatttgtt attttatttg taagaaatag tgatgaacaa agatcctttt 3050

tcatactgat acctggttgt atattatttg atgcaacagt tttctgaaat 3100

gatatttcaa attgcatcaa gaaattaaaa tcatctatct gagtagtcaa 3150

aatacaagta aaggagagca aataaacaac atttggaaaa aaaaaaaaaa 3200

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3250
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333

aaaaaaaaaa aaaaa 3265

<210> 379
<211> 919
<212> PRT
<213> Homo sapiens

<400> 379
Met Gly Leu Phe Arg Gly Phe Val Phe Leu Leu Val Leu Cys Leu
1   5   10   15

Leu His Gln Ser Asn Thr Ser Phe Ile Lys Leu Asn Asn Asn Gly
               20   25   30

Phe Glu Asp Ile Val Ile Val Ile Asp Pro Ser Val Pro Glu Asp
               35   40   45

Glu Lys Ile Ile Glu Gln Ile Glu Asp Met Val Thr Thr Ala Ser
               50   55   60

Thr Tyr Leu Phe Glu Ala Thr Glu Lys Arg Phe Phe Phe Lys Asn
               65   70   75

Val Ser Ile Leu Ile Pro Glu Asn Trp Lys Glu Asn Pro Gln Tyr
               80   85   90

Lys Arg Pro Lys His Glu Asn His Lys His Ala Asp Val Ile Val
               95   100   105

Ala Pro Pro Thr Leu Pro Gly Arg Asp Glu Pro Tyr Thr Lys Gln
              110   115   120

Phe Thr Glu Cys Gly Glu Lys Gly Glu Tyr Ile His Phe Thr Pro
              125   130   135

Asp Leu Leu Leu Gly Lys Lys Gln Asn Glu Tyr Gly Pro Pro Gly
              140   145   150

Lys Leu Phe Val His Glu Trp Ala His Leu Arg Trp Gly Val Phe
              155   160   165

Asp Glu Tyr Asn Glu Asp Gln Pro Phe Tyr Arg Ala Lys Ser Lys
              170   175   180

Lys Ile Glu Ala Thr Arg Cys Ser Ala Gly Ile Ser Gly Arg Asn
              185   190   195

Arg Val Tyr Lys Cys Gln Gly Gly Ser Cys Leu Ser Arg Ala Cys
              200   205   210

Arg Ile Asp Ser Thr Thr Lys Leu Tyr Gly Lys Asp Cys Gln Phe
              215   220   225

Phe Pro Asp Lys Val Gln Thr Glu Lys Ala Ser Ile Met Phe Met
              230   235   240

Gln Ser Ile Asp Ser Val Val Glu Phe Cys Asn Glu Lys Thr His
              245   250   255

Asn Gln Glu Ala Pro Ser Leu Gln Asn Ile Lys Cys Asn Phe Arg
              260   265   270

Ser Thr Trp Glu Val Ile Ser Asn Ser Glu Asp Phe Lys Asn Thr

334

Ile Pro Met Val Thr Pro Pro Pro Pro Val Phe Ser Leu Leu
              290   295   300

Lys Ile Ser Gln Arg Ile Val Cys Leu Val Leu Asp Lys Ser Gly
              305   310   315

Ser Met Gly Gly Lys Asp Arg Leu Asn Arg Met Asn Gln Ala Ala
              320   325   330

Lys His Phe Leu Leu Gln Thr Val Glu Asn Gly Ser Trp Val Gly
              335   340   345

Met Val His Phe Asp Ser Thr Ala Thr Ile Val Asn Lys Leu Ile
              350   355   360

Gln Ile Lys Ser Ser Asp Glu Arg Asn Thr Leu Met Ala Gly Leu
              365   370   375

Pro Thr Tyr Pro Leu Gly Gly Thr Ser Ile Cys Ser Gly Ile Lys
              380   385   390

Tyr Ala Phe Gln Val Ile Gly Glu Leu His Ser Gln Leu Asp Gly
              395   400   405

Ser Glu Val Leu Leu Leu Thr Asp Gly Glu Asp Asn Thr Ala Ser
              410   415   420

Ser Cys Ile Asp Glu Val Lys Gln Ser Gly Ala Ile Val His Phe
              425   430   435

Ile Ala Leu Gly Arg Ala Ala Asp Glu Ala Val Ile Glu Met Ser
              440   445   450

Lys Ile Thr Gly Gly Ser His Phe Tyr Val Ser Asp Glu Ala Gln
              455   460   465

Asn Asn Gly Leu Ile Asp Ala Phe Gly Ala Leu Thr Ser Gly Asn
              470   475   480

Thr Asp Leu Ser Gln Lys Ser Leu Gln Leu Glu Ser Lys Gly Leu
              485   490   495

Thr Leu Asn Ser Asn Ala Trp Met Asn Asp Thr Val Ile Ile Asp
              500   505   510

Ser Thr Val Gly Lys Asp Thr Phe Phe Leu Ile Thr Trp Asn Ser
              515   520   525

Leu Pro Pro Ser Ile Ser Leu Trp Asp Pro Ser Gly Thr Ile Met
              530   535   540

Glu Asn Phe Thr Val Asp Ala Thr Ser Lys Met Ala Tyr Leu Ser
              545   550   555

Ile Pro Gly Thr Ala Lys Val Gly Thr Trp Ala Tyr Asn Leu Gln
              560   565   570

Ala Lys Ala Asn Pro Glu Thr Leu Thr Ile Thr Val Thr Ser Arg
              575   580   585

Ala Ala Asn Ser Ser Val Pro Pro Ile Thr Val Asn Ala Lys Met

Asn Lys Asp Val Asn Ser Phe Pro Ser Pro Met Ile Val Tyr Ala
                    605   610   615

Glu Ile Leu Gln Gly Tyr Val Pro Val Leu Gly Ala Asn Val Thr
                    620   625   630

Ala Phe Ile Glu Ser Gln Asn Gly His Thr Glu Val Leu Glu Leu
                    635   640   645

Leu Asp Asn Gly Ala Gly Ala Asp Ser Phe Lys Asn Asp Gly Val
                    650   655   660

Tyr Ser Arg Tyr Phe Thr Ala Tyr Thr Glu Asn Gly Arg Tyr Ser
                    665   670   675

Leu Lys Val Arg Ala His Gly Gly Ala Asn Thr Ala Arg Leu Lys
                    680   685   690

Leu Arg Pro Pro Leu Asn Arg Ala Ala Tyr Ile Pro Gly Trp Val
                    695   700   705

Val Asn Gly Glu Ile Glu Ala Asn Pro Pro Arg Pro Glu Ile Asp
                    710   715   720

Glu Asp Thr Gln Thr Thr Leu Glu Asp Phe Ser Arg Thr Ala Ser
                    725   730   735

Gly Gly Ala Phe Val Val Ser Gln Val Pro Ser Leu Pro Leu Pro
                    740   745   750

Asp Gln Tyr Pro Pro Ser Gln Ile Thr Asp Leu Asp Ala Thr Val
                    755   760   765

His Glu Asp Lys Ile Ile Leu Thr Trp Thr Ala Pro Gly Asp Asn
                    770   775   780

Phe Asp Val Gly Lys Val Gln Arg Tyr Ile Ile Arg Ile Ser Ala
                    785   790   795

Ser Ile Leu Asp Leu Arg Asp Ser Phe Asp Asp Ala Leu Gln Val
                    800   805   810

Asn Thr Thr Asp Leu Ser Pro Lys Glu Ala Asn Ser Lys Glu Ser
                    815   820   825

Phe Ala Phe Lys Pro Glu Asn Ile Ser Glu Glu Asn Ala Thr His
                    830   835   840

Ile Phe Ile Ala Ile Lys Ser Ile Asp Lys Ser Asn Leu Thr Ser
                    845   850   855

Lys Val Ser Asn Ile Ala Gln Val Thr Leu Phe Ile Pro Gln Ala
                    860   865   870

Asn Pro Asp Asp Ile Asp Pro Thr Pro Thr Pro Thr Pro Thr Pro
                    875   880   885

Thr Pro Asp Lys Ser His Asn Ser Gly Val Asn Ile Ser Thr Leu
                    890   895   900

Val Leu Ser Val Ile Gly Ser Val Val Ile Val Asn Phe Ile Leu

Ser Thr Thr Ile

<210> 380
<211> 3877
<212> DNA
<213> Homo sapiens

<400> 380
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ctcgtgtgtg gctgccttcc tatttcaagg aaagacgcca aggtaatttt 150

gacccagagg agcaatgatg tagccacctc ctaaccttcc cttcttgaac 200

ccccagttat gccaggattt actagagagt gtcaactcaa ccagcaagcg 250

gctccttcgg cttaacttgt ggttggagga gagaaccttt gtggggctgc 300

gttctcttag cagtgctcag aagtgacttg cctgagggtg gaccagaaga 350

aaggaaaggt cccctcttgc tgttggctgc acatcaggaa ggctgtgatg 400

ggaatgaagg tgaaaacttg gagatttcac ttcagtcatt gcttctgcct 450

gcaagatcat cctttaaaag tagagaagct gctctgtgtg gtggttaact 500

ccaagaggca gaactcgttc tagaaggaaa tggatgcaag cagctccggg 550

ggccccaaac gcatgcttcc tgtggtctag cccagggaag cccttccgtg 600

ggggccccgg ctttgaggga tgccaccggt tctggacgca tggctgattc 650

ctgaatgatg atggttcgcc gggggctgct tgcgtggatt tcccgggtgg 700

tggttttgct ggtgctcctc tgctgtgcta tctctgtcct gtacatgttg 750

gcctgcaccc caaaaggtga cgaggagcag ctggcactgc ccagggccaa 800

cagccccacg gggaaggagg ggtaccaggc cgtccttcag gagtgggagg 850

agcagcaccg caactacgtg agcagcctga agcggcagat cgcacagctc 900

aaggaggagc tgcaggagag gagtgagcag ctcaggaatg ggcagtacca 950

agccagcgat gctgctggcc tgggtctgga caggagcccc ccagagaaaa 1000

cccaggccga cctcctggcc ttcctgcact cgcaggtgga caaggcagag 1050

gtgaatgctg gcgtcaagct ggccacagag tatgcagcag tgcctttcga 1100

tagctttact ctacagaagg tgtaccagct ggagactggc cttacccgcc 1150

accccgagga gaagcctgtg aggaaggaca agcgggatga gttggtggaa 1200

gccattgaat cagccttgga gaccctgaac aatcctgcag agaacagccc 1250

caatcaccgt ccttacacgg cctctgattt catagaaggg atctaccgaa 1300

337

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cagaaaggga caaagggaca ttgtatgagc tcaccttcaa aggggaccac 1350

aaacacgaat tcaaacggct catcttattt cgaccattca gccccatcat 1400

gaaagtgaaa aatgaaaagc tcaacatggc caacacgctt atcaatgtta 1450

tcgtgcctct agcaaaaagg gtggacaagt tccggcagtt catgcagaat 1500

ttcagggaga tgtgcattga gcaggatggg agagtccatc tcactgttgt 1550

ttactttggg aaagaagaaa taaatgaagt caaaggaata cttgaaaaca 1600

cttccaaagc tgccaacttc aggaacttta ccttcatcca gctgaatgga 1650

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aagcaacgtc cttctctttt tctgtgatgt ggacatctac ttcacatctg 1750

aattcctcaa tacgtgtagg ctgaatacac agccagggaa gaaggtattt 1800

tatccagttc ttttcagtca gtacaatcct ggcataatat acggccacca 1850

tgatgcagtc cctcccttgg aacagcagct ggtcataaag aaggaaactg 1900

gattttggag agactttgga tttgggatga cgtgtcagta tcggtcagac 1950

ttcatcaata taggtgggtt tgatctggac atcaaaggct ggggcggaga 2000

ggatgtgcac ctttatcgca agtatctcca cagcaacctc atagtggtac 2050

ggacgcctgt gcgaggactc ttccacctct ggcatgagaa gcgctgcatg 2100

gacgagctga cccccgagca gtacaagatg tgcatgcagt ccaaggccat 2150

gaacgaggca tcccacggcc agctgggcat gctggtgttc aggcacgaga 2200

tagaggctca ccttcgcaaa cagaaacaga agacaagtag caaaaaaaca 2250

tgaactccca gagaaggatt gtgggagaca cttttctttt ccttttgcaa 2300

ttactgaaag tggctgcaac agagaaaaga cttccataaa ggacgacaaa 2350

agaattggac tgatgggtca gagatgagaa agcctccgat ttctctctgt 2400

tgggcttttt acaacagaaa tcaaatctc cgctttgcct gcaaaagtaa 2450

cccagttgca ccctgtgaag tgtctgacaa aggcagaatg cttgtgagat 2500

tataagccta atggtgtgga ggttttgatg gtgtttacaa tacactgaga 2550

cctgttgttt tgtgtgctca ttgaaatatt catgatttaa gagcagtttt 2600

gtaaaaaatt cattagcatg aaaggcaagc atatttctcc tcatatgaat 2650

gagcctatca gcagggctct agtttctagg aatgctaaaa tatcagaagg 2700

caggagagga gataggctta ttatgatact agtgagtaca ttaagtaaaa 2750

taaaatggac cagaaaagaa aagaaaccat aaatatcgtg tcatattttc 2800

cccaagatta accaaaaata atctgcttat cttttttggtt gtcctttttaa 2850

ctgtctccgt ttttttcttt tatttaaaaa tgcacttttt ttcccttgtg 2900
```

338

```
agttatagtc tgcttattta attaccactt tgcaagcctt acaagagagc 2950

acaagttggc ctacattttt atattttta agaagatact ttgagatgca 3000

ttatgagaac tttcagttca aagcatcaaa ttgatgccat atccaaggac 3050

atgccaaatg ctgattctgt caggcactga atgtcaggca ttgagacata 3100

gggaaggaat ggtttgtact aatacagacg tacagatact ttctctgaag 3150

agtattttcg aagaggagca actgaacact ggaggaaaag aaaatgacac 3200

tttctgcttt acagaaaagg aaactcattc agactggtga tatcgtgatg 3250

tacctaaaag tcagaaacca cattttctcc tcagaagtag ggaccgcttt 3300

cttacctgtt taaataaacc aaagtatacc gtgtgaacca aacaatctct 3350

tttcaaaaca gggtgctcct cctggcttct ggcttccata agaagaaatg 3400

gagaaaaata tatatatata tatatatatt gtgaaagatc aatccatctg 3450

ccagaatcta gtgggatgga agttttttgct acatgttatc cacccccaggc 3500

caggtggaag taactgaatt attttttaaa ttaagcagtt ctactcaatc 3550

accaagatgc ttctgaaaat tgcattttat taccatttca aactatttt 3600

taaaaataaa tacagttaac atagagtggt ttcttcattc atgtgaaaat 3650

tattagccag caccagatgc atgagctaat tatctctttg agtccttgct 3700

tctgtttgct cacagtaaac tcattgttta aaagcttcaa gaacattcaa 3750

gctgttggtg tgttaaaaaa tgcattgtat tgatttgtac tggtagttta 3800

tgaaatttaa ttaaaacaca ggccatgaat ggaaggtggt attgcacagc 3850

taataaaata tgatttgtgg atatgaa 3877
```

<210> 381
<211> 532
<212> PRT
<213> Homo sapiens

<400> 381
```
Met Met Met Val Arg Arg Gly Leu Leu Ala Trp Ile Ser Arg Val
 1               5                   10                  15

Val Val Leu Leu Val Leu Leu Cys Cys Ala Ile Ser Val Leu Tyr
                20                  25                  30

Met Leu Ala Cys Thr Pro Lys Gly Asp Glu Glu Gln Leu Ala Leu
                35                  40                  45

Pro Arg Ala Asn Ser Pro Thr Gly Lys Glu Gly Tyr Gln Ala Val
                50                  55                  60

Leu Gln Glu Trp Glu Glu Gln His Arg Asn Tyr Val Ser Ser Leu
                65                  70                  75

Lys Arg Gln Ile Ala Gln Leu Lys Glu Glu Leu Gln Glu Arg Ser
                80                  85                  90
```

339

```
Glu Gln Leu Arg Asn Gly Gln Tyr Gln Ala Ser Asp Ala Ala Gly
                95                    100                   105

Leu Gly Leu Asp Arg Ser Pro Pro Glu Lys Thr Gln Ala Asp Leu
               110                    115                   120

Leu Ala Phe Leu His Ser Gln Val Asp Lys Ala Glu Val Asn Ala
               125                    130                   135

Gly Val Lys Leu Ala Thr Glu Tyr Ala Ala Val Pro Phe Asp Ser
               140                    145                   150

Phe Thr Leu Gln Lys Val Tyr Gln Leu Glu Thr Gly Leu Thr Arg
               155                    160                   165

His Pro Glu Glu Lys Pro Val Arg Lys Asp Lys Arg Asp Glu Leu
               170                    175                   180

Val Glu Ala Ile Glu Ser Ala Leu Glu Thr Leu Asn Asn Pro Ala
               185                    190                   195

Glu Asn Ser Pro Asn His Arg Pro Tyr Thr Ala Ser Asp Phe Ile
               200           .        205                   210

Glu Gly Ile Tyr Arg Thr Glu Arg Asp Lys Gly Thr Leu Tyr Glu
               215                    220                   225

Leu Thr Phe Lys Gly Asp His Lys His Glu Phe Lys Arg Leu Ile
               230                    235                   240

Leu Phe Arg Pro Phe Ser Pro Ile Met Lys Val Lys Asn Glu Lys
               245                    250                   255

Leu Asn Met Ala Asn Thr Leu Ile Asn Val Ile Val Pro Leu Ala
               260                    265                   270

Lys Arg Val Asp Lys Phe Arg Gln Phe Met Gln Asn Phe Arg Glu
               275                    280                   285

Met Cys Ile Glu Gln Asp Gly Arg Val His Leu Thr Val Val Tyr
               290                    295                   300

Phe Gly Lys Glu Glu Ile Asn Glu Val Lys Gly Ile Leu Glu Asn
               305                    310                   315

Thr Ser Lys Ala Ala Asn Phe Arg Asn Phe Thr Phe Ile Gln Leu
               320                    325                   330

Asn Gly Glu Phe Ser Arg Gly Lys Gly Leu Asp Val Gly Ala Arg
               335                    340                   345

Phe Trp Lys Gly Ser Asn Val Leu Leu Phe Phe Cys Asp Val Asp
               350                    355                   360

Ile Tyr Phe Thr Ser Glu Phe Leu Asn Thr Cys Arg Leu Asn Thr
               365                    370                   375

Gln Pro Gly Lys Lys Val Phe Tyr Pro Val Leu Phe Ser Gln Tyr
               380                    385                   390

Asn Pro Gly Ile Ile Tyr Gly His His Asp Ala Val Pro Pro Leu
               395                    400                   405
```

```
Glu Gln Gln Leu Val Ile Lys Lys Glu Thr Gly Phe Trp Arg Asp
                410             415             420

Phe Gly Phe Gly Met Thr Cys Gln Tyr Arg Ser Asp Phe Ile Asn
                425             430             435

Ile Gly Gly Phe Asp Leu Asp Ile Lys Gly Trp Gly Gly Glu Asp
                440             445             450

Val His Leu Tyr Arg Lys Tyr Leu His Ser Asn Leu Ile Val Val
                455             460             465

Arg Thr Pro Val Arg Gly Leu Phe His Leu Trp His Glu Lys Arg
                470             475             480

Cys Met Asp Glu Leu Thr Pro Glu Gln Tyr Lys Met Cys Met Gln
                485             490             495

Ser Lys Ala Met Asn Glu Ala Ser His Gly Gln Leu Gly Met Leu
                500             505             510

Val Phe Arg His Glu Ile Glu Ala His Leu Arg Lys Gln Lys Gln
                515             520             525

Lys Thr Ser Ser Lys Lys Thr
                530
```

<210> 382
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 382
 ctcggggaaa gggacttgat gttgg 25

<210> 383
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 383
 gcgaaggtga gcctctatct cgtgcc 26

<210> 384
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 384
 cagcctacac gtattgagg 19

<210> 385
<211> 48
<212> DNA

<center>341</center>

<210> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 385
 cagtcagtac aatcctggca taatatacgg ccaccatgat gcagtccc 48

<210> 386
<211> 1346
<212> DNA
<213> Homo sapiens

<400> 386
 gaaagaatgt tgtggctgct cttttttctg gtgactgcca ttcatgctga 50

 actctgtcaa ccaggtgcag aaaatgcttt taaagtgaga cttagtatca 100

 gaacagctct gggagataaa gcatatgcct gggataccaa tgaagaatac 150

 ctcttcaaag cgatggtagc tttctccatg agaaaagttc ccaacagaga 200

 agcaacagaa atttcccatg tcctactttg caatgtaacc cagagggtat 250

 cattctggtt tgtggttaca gacccttcaa aaaatcacac ccttcctgct 300

 gttgaggtgc aatcagccat aagaatgaac aagaaccgga tcaacaatgc 350

 cttctttcta aatgaccaaa ctctggaatt tttaaaaatc ccttccacac 400

 ttgcaccacc catggaccca tctgtgccca tctggattat tatatttggt 450

 gtgatatttt gcatcatcat agttgcaatt gcactactga tttttatcagg 500

 gatctggcaa cgtagaagaa agaacaaaga accatctgaa gtggatgacg 550

 ctgaagataa gtgtgaaaac atgatcacaa ttgaaaatgg catcccctct 600

 gatcccctgg acatgaaggg gggcatatta atgatgcctt catgacagag 650

 gatgagaggc tcacccctct ctgaagggct gttgttctgc ttcctcaaga 700

 aattaaacat ttgtttctgt gtgactgctg agcatcctga aataccaaga 750

 gcagatcata tattttgttt caccattctt cttttgtaat aaattttgaa 800

 tgtgcttgaa agtgaaaagc aatcaattat acccaccaac accactgaaa 850

 tcataagcta ttcacgactc aaaatattct aaaatatttt tctgacagta 900

 tagtgtataa atgtggtcat gtggtatttg tagttattga tttaagcatt 950

 tttagaaata agatcaggca tatgtatata ttttcacact tcaaagacct 1000

 aaggaaaaat aaattttcca gtggagaata catataatat ggtgtagaaa 1050

 tcattgaaaa tggatccttt ttgacgatca cttatatcac tctgtatatg 1100

 actaagtaaa caaaagtgag aagtaattat tgtaaatgga tggataaaaa 1150

 tggaattact catatacagg gtggaatttt atcctgttat cacaccaaca 1200

 gttgattata tattttctga atatcagccc ctaataggac aattctatttt 1250

342

```
     gttgaccatt tctacaattt gtaaaagtcc aatctgtgct aacttaataa 1300

     agtaataatc atctcttttt aaaaaaaaaa aaaaaaaaaa aaaaaa 1346
```

<210> 387
<211> 212
<212> PRT
<213> Homo sapiens

<400> 387

```
Met Leu Trp Leu Leu Phe Phe Leu Val Thr Ala Ile His Ala Glu
 1               5                  10                      15

Leu Cys Gln Pro Gly Ala Glu Asn Ala Phe Lys Val Arg Leu Ser
            20                  25                      30

Ile Arg Thr Ala Leu Gly Asp Lys Ala Tyr Ala Trp Asp Thr Asn
            35                  40                      45

Glu Glu Tyr Leu Phe Lys Ala Met Val Ala Phe Ser Met Arg Lys
            50                  55                      60

Val Pro Asn Arg Glu Ala Thr Glu Ile Ser His Val Leu Leu Cys
            65                  70                      75

Asn Val Thr Gln Arg Val Ser Phe Trp Phe Val Val Thr Asp Pro
            80  .               85                      90

Ser Lys Asn His Thr Leu Pro Ala Val Glu Val Gln Ser Ala Ile
            95                  100                     105

Arg Met Asn Lys Asn Arg Ile Asn Asn Ala Phe Phe Leu Asn Asp
            110                 115                     120

Gln Thr Leu Glu Phe Leu Lys Ile Pro Ser Thr Leu Ala Pro Pro
            125                 130                     135

Met Asp Pro Ser Val Pro Ile Trp Ile Ile Ile Phe Gly Val Ile
            140                 145                     150

Phe Cys Ile Ile Ile Val Ala Ile Ala Leu Leu Ile Leu Ser Gly
            155                 160                     165

Ile Trp Gln Arg Arg Arg Lys Asn Lys Glu Pro Ser Glu Val Asp
            170                 175                     180

Asp Ala Glu Asp Lys Cys Glu Asn Met Ile Thr Ile Glu Asn Gly
            185                 190                     195

Ile Pro Ser Asp Pro Leu Asp Met Lys Gly Gly Ile Leu Met Met
            200                 205                     210

Pro Ser
```

<210> 388
<211> 1371
<212> DNA
<213> Homo sapiens

<400> 388

```
 aactcaaact cctctctctg ggaaaacgcg gtgcttgctc ctcccggagt 50
```

343

```
ggccttggca gggtgttgga gccctcggtc tgccccgtcc ggtctctggg 100

gccaaggctg ggtttccctc atgtatggca agagctctac tcgtgcggtg 150

cttcttctcc ttggcataca gctcacagct ctttggccta tagcagctgt 200

ggaaatttat acctcccggg tgctggaggc tgttaatggg acagatgctc 250

ggttaaaatg cactttctcc agctttgccc ctgtgggtga tgctctaaca 300

gtgacctgga attttcgtcc tctagacggg ggacctgagc agtttgtatt 350

ctactaccac atagatccct tccaacccat gagtgggcgg tttaaggacc 400

gggtgtcttg ggatgggaat cctgagcggt acgatgcctc catccttctc 450

tggaaactgc agttcgacga caatgggaca tacacctgcc aggtgaagaa 500

cccacctgat gttgatgggg tgatagggga gatccggctc agcgtcgtgc 550

acactgtacg cttctctgag atccacttcc tggctctggc cattggctct 600

gcctgtgcac tgatgatcat aatagtaatt gtagtggtcc tcttccagca 650

ttaccggaaa aagcgatggg ccgaaagagc tcataaagtg gtggagataa 700

aatcaaaaga agaggaaagg ctcaaccaag agaaaaaggt ctctgtttat 750

ttagaagaca cagactaaca attttagatg gaagctgaga tgatttccaa 800

gaacaagaac cctagtattt cttgaagtta atggaaactt ttctttggct 850

tttccagttg tgacccgttt tccaaccagt tctgcagcat attagattct 900

agacaagcaa cacccctctg gagccagcac agtgctcctc catatcacca 950

gtcatacaca gcctcattat taaggtctta tttaatttca gagtgtaaat 1000

tttttcaagt gctcattagg ttttataaac aagaagctac attttgccc 1050

ttaagacact acttacagtg ttatgacttg tatacacata tattggtatc 1100

aaagggggata aaagccaatt tgtctgttac atttcctttc acgtatttct 1150

tttagcagca cttctgctac taaagttaat gtgtttactc tctttccttc 1200

ccacattctc aattaaaagg tgagctaagc ctcctcggtg tttctgatta 1250

acagtaaatc ctaaattcaa actgttaaat gacattttta tttttatgtc 1300

tctccttaac tatgagacac atcttgtttt actgaatttc tttcaatatt 1350

ccaggtgata gatttttgtc g 1371
```

<210> 389
<211> 215
<212> PRT
<213> Homo sapiens

<400> 389
```
Met Tyr Gly Lys Ser Ser Thr Arg Ala Val Leu Leu Leu Leu Gly
 1               5               10                  15
```

344

```
Ile Gln Leu Thr Ala Leu Trp Pro Ile Ala Ala Val Glu Ile Tyr
                20              25              30

Thr Ser Arg Val Leu Glu Ala Val Asn Gly Thr Asp Ala Arg Leu
                35              40              45

Lys Cys Thr Phe Ser Ser Phe Ala Pro Val Gly Asp Ala Leu Thr
                50              55              60

Val Thr Trp Asn Phe Arg Pro Leu Asp Gly Gly Pro Glu Gln Phe
                65              70              75

Val Phe Tyr Tyr His Ile Asp Pro Phe Gln Pro Met Ser Gly Arg
                80              85              90

Phe Lys Asp Arg Val Ser Trp Asp Gly Asn Pro Glu Arg Tyr Asp
                95              100             105

Ala Ser Ile Leu Leu Trp Lys Leu Gln Phe Asp Asp Asn Gly Thr
                110             115             120

Tyr Thr Cys Gln Val Lys Asn Pro Pro Asp Val Asp Gly Val Ile
                125             130             135

Gly Glu Ile Arg Leu Ser Val Val His Thr Val Arg Phe Ser Glu
                140             145             150

Ile His Phe Leu Ala Leu Ala Ile Gly Ser Ala Cys Ala Leu Met
                155             160             165

Ile Ile Ile Val Ile Val Val Val Leu Phe Gln His Tyr Arg Lys
                170             175             180

Lys Arg Trp Ala Glu Arg Ala His Lys Val Val Glu Ile Lys Ser
                185             190             195

Lys Glu Glu Glu Arg Leu Asn Gln Glu Lys Lys Val Ser Val Tyr
                200             205             210

Leu Glu Asp Thr Asp
                215
```

```
<210> 392
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 392
 gagaggactg cgggagtttg ggacctttgt gcagacgtgc tcatg 45

<210> 393
<211> 471
<212> DNA
<213> Homo sapiens

<400> 393
 gcatttttgt ctgtgctccc tgatcttcag gtcaccacca tgaagttctt 50

 agcagtcctg gtactcttgg gagtttccat ctttctggtc tctgcccaga 100

 atccgacaac agctgctcca gctgacacgt atccagctac tggtcctgct 150

 gatgatgaag cccctgatgc tgaaaccact gctgctgcaa ccactgcgac 200

 cactgctgct cctaccactg caaccaccgc tgcttctacc actgctcgta 250

 aagacattcc agttttaccc aaatgggttg gggatctccc gaatggtaga 300

 gtgtgtccct gagatggaat cagcttgagt cttctgcaat tggtcacaac 350

 tattcatgct tcctgtgatt tcatccaact acttaccttg cctacgatat 400

 cccctttatc tctaatcagt ttattttctt tcaaataaaa aataactatg 450

 agcaacataa aaaaaaaaaa a 471

<210> 394
<211> 90
<212> PRT
<213> Homo sapiens

<400> 394
 Met Lys Phe Leu Ala Val Leu Val Leu Leu Gly Val Ser Ile Phe
  1               5                  10                  15

 Leu Val Ser Ala Gln Asn Pro Thr Thr Ala Ala Pro Ala Asp Thr
                 20                  25                  30

 Tyr Pro Ala Thr Gly Pro Ala Asp Asp Glu Ala Pro Asp Ala Glu
                 35                  40                  45

 Thr Thr Ala Ala Ala Thr Thr Ala Thr Thr Ala Ala Pro Thr Thr
                 50                  55                  60

 Ala Thr Thr Ala Ala Ser Thr Thr Ala Arg Lys Asp Ile Pro Val
                 65                  70                  75

 Leu Pro Lys Trp Val Gly Asp Leu Pro Asn Gly Arg Val Cys Pro
                 80                  85                  90

<210> 395
<211> 25
```

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 395
 gctccctgat cttcatgtca ccacc 25

<210> 396
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 396
 cagggacaca ctctaccatt cgggag 26

<210> 397
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 397
 ccatctttct ggtctctgcc cagaatccga caacagctgc tc 42

<210> 398
<211> 907
<212> DNA
<213> Homo sapiens

<400> 398
 ggactctgaa ggtcccaagc agctgctgag gcccccaagg aagtggttcc 50

 aaccttggac ccctaggggt ctggatttgc tggttaacaa gataacctga 100

 gggcaggacc ccatagggga atgctacctc ctgcccttcc acctgccctg 150

 gtgttcacgg tggcctggtc cctccttgcc gagagagtgt cctgggtcag 200

 ggacgcagag gacgctcaca gactccagcc ctttgttacc gagaggacac 250

 ttggcaaggt ccagcgatgg tccggagtcc acacacagac tggcggcagg 300

 gcaggagggg gacagttctg ttgtgcttgg ttggacagta agagggtctt 350

 ggccagtcca gggtgggggg cggcaaactc cataaagaac cagagggtct 400

 gggccccggc cacagagtca tctgcccagc tcctctgctg ctggccagtg 450

 ggagtggcac gaggtggggc tttgtgccag taaaaccaca ggctggattt 500

 gcctgcgggc catggtccct gtctaggca gcaattctca accttcttgc 550

 tctcaggacc ccaaagagct ttcattgtat ctattgattt ttaccacatt 600

 agcaattaaa actgagaaat gggccgggca cggtggctca cgcctgtaat 650

```
cccagcactt tgggaggccg aggcgggtgg atcacctgag atcaggagtt 700

caagaccagc ctggccaaca tggtgaaacc ttgtctacta aaaatacaaa 750

aaattagcca ggcacagtgg tgtgcactgg tagtcccagt tactcgggag 800

gctgaggcag gaaaatcgct tgaacccagg aggcggacgt tgcggtgagc 850

cgagatcgcg ccgctgattc cagcctgggc gacaagagtg agactccatc 900

tcacaca 907
```

<210> 399
<211> 120
<212> PRT
<213> Homo sapiens

<400> 399

```
 Met Leu Pro Pro Ala Leu Pro Pro Ala Leu Val Phe Thr Val Ala
  1               5                  10                  15

 Trp Ser Leu Leu Ala Glu Arg Val Ser Trp Val Arg Asp Ala Glu
                 20                  25                  30

 Asp Ala His Arg Leu Gln Pro Phe Val Thr Glu Arg Thr Leu Gly
                 35                  40                  45

 Lys Val Gln Arg Trp Ser Gly Val His Thr Gln Thr Gly Gly Arg
                 50                  55                  60

 Ala Gly Gly Gly Gln Phe Cys Cys Ala Trp Leu Asp Ser Lys Arg
                 65                  70                  75

 Val Leu Ala Ser Pro Gly Trp Gly Ala Ala Asn Ser Ile Lys Asn
                 80                  85                  90

 Gln Arg Val Trp Ala Pro Ala Thr Glu Ser Ser Ala Gln Leu Leu
                 95                 100                 105

 Cys Cys Trp Pro Val Gly Val Ala Arg Gly Gly Ala Leu Cys Gln
                110                 115                 120
```

<210> 400
<211> 893
<212> DNA
<213> Homo sapiens

<400> 400

```
 gtcatgccag tgcctgctct gtgcctgctc tgggccctgg caatggtgac 50

 ccggcctgcc tcagcggccc ccatgggcgg cccagaactg gcacagcatg 100

 aggagctgac cctgctcttc catgggaccc tgcagctggg ccaggccctc 150

 aacggtgtgt acaggaccac ggaggacggg ctgacaaagg ccaggaacag 200

 cctgggtctc tatggccgca caatagaact cctggggcag gaggtcagcc 250

 ggggccggga tgcagcccag gaacttcggg caagcctgtt ggagactcag 300

 atggaggagg atattctgca gctgcaggca gaggccacag ctgaggtgct 350

 gggggaggtg gcccaggcac agaaggtgct acgggacagc gtgcagcggc 400
```

tagaagtcca gctgaggagc gcctggctgg gccctgccta ccgagaattt 450

gaggtcttaa aggctcacgc tgacaagcag agccacatcc tatgggccct 500

cacaggccac gtgcagcggc agaggcggga gatggtggca cagcagcatc 550

ggctgcgaca gatccaggag agactccaca cagcggcgct cccagcctga 600

atctgcctgg atggaactga ggaccaatca tgctgcaagg aacacttcca 650

cgccccgtga ggccctgtg cagggaggag ctgcctgttc actgggatca 700

gccagggcgc cgggccccac ttctgagcac agagcagaga cagacgcagg 750

cggggacaaa ggcagaggat gtagccccat tggggagggg tggaggaagg 800

acatgtaccc tttcatgcct acacacccct cattaaagca gagtcgtggc 850

atttcaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 893

<210> 401
<211> 198
<212> PRT
<213> Homo sapiens

<400> 401
Met Pro Val Pro Ala Leu Cys Leu Leu Trp Ala Leu Ala Met Val
1   5   10   15

Thr Arg Pro Ala Ser Ala Ala Pro Met Gly Gly Pro Glu Leu Ala
                20   25   30

Gln His Glu Glu Leu Thr Leu Leu Phe His Gly Thr Leu Gln Leu
                35   40   45

Gly Gln Ala Leu Asn Gly Val Tyr Arg Thr Thr Glu Gly Arg Leu
                50   55   60

Thr Lys Ala Arg Asn Ser Leu Gly Leu Tyr Gly Arg Thr Ile Glu
                65   70   75

Leu Leu Gly Gln Glu Val Ser Arg Gly Arg Asp Ala Ala Gln Glu
                80   85   90

Leu Arg Ala Ser Leu Leu Glu Thr Gln Met Glu Glu Asp Ile Leu
                95   100   105

Gln Leu Gln Ala Glu Ala Thr Ala Glu Val Leu Gly Glu Val Ala
                110   115   120

Gln Ala Gln Lys Val Leu Arg Asp Ser Val Gln Arg Leu Glu Val
                125   130   135

Gln Leu Arg Ser Ala Trp Leu Gly Pro Ala Tyr Arg Glu Phe Glu
                140   145   150

Val Leu Lys Ala His Ala Asp Lys Gln Ser His Ile Leu Trp Ala
                155   160   165

Leu Thr Gly His Val Gln Arg Gln Arg Arg Glu Met Val Ala Gln
                170   175   180

Gln His Arg Leu Arg Gln Ile Gln Glu Arg Leu His Thr Ala Ala

349

Leu Pro Ala

<210> 402
<211> 1915
<212> DNA
<213> Homo sapiens

<400> 402
ggcaacatgg ctcagcaggc ttgccccaga gccatggcaa agaatggact 50

tgtaatttgc atcctggtga tcaccttact cctggaccag accaccagcc 100

acacatccag attaaaagcc aggaagcaca gcaaacgtcg agtgagagac 150

aaggatggag atctgaagac tcaaattgaa aagctctgga cagaagtcaa 200

tgccttgaag gaaattcaag ccctgcagac agtctgtctc cgaggcacta 250

aagttcacaa gaaatgctac cttgcttcag aaggtttgaa gcatttccat 300

gaggccaatg aagactgcat ttccaaagga ggaatcctgg ttatccccag 350

gaactccgac gaaatcaacg ccctccaaga ctatggtaaa aggagcctgc 400

caggtgtcaa tgacttttgg ctgggcatca atgacatggt cacggaaggc 450

aagtttgttg acgtcaacgg aatcgctatc tccttcctca actgggaccg 500

tgcacagcct aacggtggca agcgagaaaa ctgtgtcctg ttctcccaat 550

cagctcaggg caagtggagt gatgaggcct gtcgcagcag caagagatac 600

atatgcgagt tcaccatccc taaataggtc tttctccaat gtgtcctcca 650

agcaagattc atcataactt ataggttcat gatctctaag atcaagtaaa 700

aatcataatt tttacttatt aaaaaattgc aacacaagat caatgtccat 750

agcaatatga tagcatcagc caattttgct aacacatttc tttgggattt 800

tgcccttcct ggggtatagg ggatcagaaa tattgatcca tgtgcacgca 850

gataaaatgg cttctgctaa acagactaaa atctttctct ctagtctttc 900

tcacttgtac aaacccagtt tgtttcaaa aaatcacagt agcaatgcaa 950

ctcatcactc tagaaaagca agcttaggct acctgaaaga ttttcccttg 1000

gaagtttagc gtatgtttga ctaacaaaaa ttccctacat cagagactct 1050

aggtgctata taatccaaaa acttttcagc ctgttgctca ttctgtccca 1100

tgctggcaat aataccttgt cagcccatta cccttatttt gaattgctcc 1150

atctcctggt gggacttgta tcttgtctgc catatcagaa cacaaacccc 1200

tgaagaggtt ctgatttgat tttttttttt tcttcatgcc taccctttt 1250

ttggaagttt ccagccgcaa tttgaaatga aatgacaagg tgtatatttg 1300

```
atcaatttc attcccacca ttgcattaca acctctaact taaatgggta 1350

accctaaggc atatcaaaga agcagattgc atgataaacg gaaatagaaa 1400

aaaagaacct acatttattt tgctttagca tccttactct caccttttat 1450

gagattgaga gtggacttac atttcctttt ttacattttc gtatatttat 1500

ttttttagc catcattata tgtttaagtc tattatgggc aaccaatctt 1550

tggaagctga aaactgaatt taaagaatgc tatcttggaa aattgcatac 1600

gtctgtgcaa tttttttattc tgcctagtgc tattctgctt gtttaactag 1650

attgtacaaa ataacttcat tgcttaatat caaattacaa agtttagact 1700

tggagggaaa tgggcttttt agaagcaaac aattttaaat atattttgtt 1750

cttcaaataa atagtgttta aacattgaat gtgttttgtg aacaatatcc 1800

cactttgcaa actttaacta cacatgcttg gaattaagtt ttagctgttt 1850

tcattgctca ataataaagc ctgaattctg atcaataaaa aaaaaaaaa 1900

aaaaaaaaaa aaaaa 1915


<210> 403
<211> 206
<212> PRT
<213> Homo sapiens

<400> 403
Met Ala Gln Gln Ala Cys Pro Arg Ala Met Ala Lys Asn Gly Leu
1               5                   10                  15

Val Ile Cys Ile Leu Val Ile Thr Leu Leu Leu Asp Gln Thr Thr
            20                  25                  30

Ser His Thr Ser Arg Leu Lys Ala Arg Lys His Ser Lys Arg Arg
            35                  40                  45

Val Arg Asp Lys Asp Gly Asp Leu Lys Thr Gln Ile Glu Lys Leu
            50                  55                  60

Trp Thr Glu Val Asn Ala Leu Lys Glu Ile Gln Ala Leu Gln Thr
            65                  70                  75

Val Cys Leu Arg Gly Thr Lys Val His Lys Lys Cys Tyr Leu Ala
            80                  85                  90

Ser Glu Gly Leu Lys His Phe His Glu Ala Asn Glu Asp Cys Ile
            95                  100                 105

Ser Lys Gly Gly Ile Leu Val Ile Pro Arg Asn Ser Asp Glu Ile
            110                 115                 120

Asn Ala Leu Gln Asp Tyr Gly Lys Arg Ser Leu Pro Gly Val Asn
            125                 130                 135

Asp Phe Trp Leu Gly Ile Asn Asp Met Val Thr Glu Gly Lys Phe
            140                 145                 150

Val Asp Val Asn Gly Ile Ala Ile Ser Phe Leu Asn Trp Asp Arg
```

351

Ala Gln Pro Asn Gly Gly Lys Arg Glu Asn Cys Val Leu Phe Ser
                    170   175   180

Gln Ser Ala Gln Gly Lys Trp Ser Asp Glu Ala Cys Arg Ser Ser
                    185   190   195

Lys Arg Tyr Ile Cys Glu Phe Thr Ile Pro Lys
                    200   205

<210> 404
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 404
 cctggttatc cccaggaact ccgac 25

<210> 405
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 405
 ctcttgctgc tgcgacaggc ctc 23

<210> 406
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 406
 cgccctccaa gactatggta aaaggagcct gccaggtgtc aatgac 46

<210> 407
<211> 570
<212> DNA
<213> Homo sapiens

<400> 407
 gcgaggaccg ggtataagaa gcctcgtggc cttgcccggg cagccgcagg 50

 ttccccgcgc gccccgagcc cccgcgccat gaagctcgcc gccctcctgg 100

 ggctctgcgt ggccctgtcc tgcagctccg ctgctgcttt cttagtgggc 150

 tcggccaagc ctgtggccca gcctgtcgct gcgctggagt cggcggcgga 200

 ggccgggggcc gggaccctgg ccaacccccct cggcaccctc aacccgctga 250

 agctcctgct gagcagcctg ggcatccccg tgaaccacct catagagggc 300 ·

 tcccagaagt gtgtggctga gctgggtccc caggccgtgg gggccgtgaa 350

```
ggccctgaag gccctgctgg gggccctgac agtgtttggc tgagccgaga 400

ctggagcatc tacacctgag gacaagacgc tgcccacccg cgagggctga 450

aaaccccgcc gcggggagga ccgtccatcc ccttcccccg gcccctctca 500

ataaacgtgg ttaagagcaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 550

aaaaaaaaaa aaaaaaaaaa 570
```

<210> 408
<211> 104
<212> PRT
<213> Homo sapiens

<400> 408

```
 Met Lys Leu Ala Ala Leu Leu Gly Leu Cys Val Ala Leu Ser Cys
  1               5                  10                  15

 Ser Ser Ala Ala Ala Phe Leu Val Gly Ser Ala Lys Pro Val Ala
                 20                  25                  30

 Gln Pro Val Ala Ala Leu Glu Ser Ala Ala Glu Ala Gly Ala Gly
                 35                  40                  45

 Thr Leu Ala Asn Pro Leu Gly Thr Leu Asn Pro Leu Lys Leu Leu
                 50                  55                  60

 Leu Ser Ser Leu Gly Ile Pro Val Asn His Leu Ile Glu Gly Ser
                 65                  70                  75

 Gln Lys Cys Val Ala Glu Leu Gly Pro Gln Ala Val Gly Ala Val
                 80                  85                  90

 Lys Ala Leu Lys Ala Leu Leu Gly Ala Leu Thr Val Phe Gly
                 95                 100
```

<210> 409
<211> 2089
<212> DNA
<213> Homo sapiens

<400> 409

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 tgaaggactt ttccaggacc caaggccaca cactggaagt cttgcagctg 50

 aagggaggca ctccttggcc tccgcagccg atcacatgaa ggtggtgcca 100

 agtctcctgc tctccgtcct cctggcacag gtgtggctgg tacccggctt 150

 ggcccccagt cctcagtcgc cagagacccc agcccctcag aaccagacca 200

 gcagggtagt gcaggctccc agggaggaag aggaagatga gcaggaggcc 250

 agcgaggaga aggccggtga ggaagagaaa gcctggctga tggccagcag 300

 gcagcagctt gccaaggaga cttcaaactt cggattcagc ctgctgcgaa 350

 agatctccat gaggcacgat ggcaacatgg tcttctctcg atttggcatg 400

 tccttggcca tgacaggctt gatgctgggg gccacagggc cgactgaaac 450

 ccagatcaag agagggctcc acttgcaggc cctgaagccc accaagcccg 500
```

```
ggctcctgcc ttccctcttt aagggactca gagagaccct ctcccgcaac 550

ctggaactgg gcctctcaca ggggagtttt gccttcatcc acaaggattt 600

tgatgtcaaa gagactttct tcaatttatc caagaggtat tttgatacag 650

agtgcgtgcc tatgaatttt cgcaatgcct cacaggccaa aaggctcatg 700

aatcattaca ttaacaaaga gactcggggg aaaattccca aactgtttga 750

tgagattaat cctgaaacca aattaattct tgtggattac atcttgttca 800

aagggaaatg gttgacccca tttgaccctg tcttcaccga agtcgacact 850

ttccacctgg acaagtacaa gaccattaag gtgcccatga tgtacggtgc 900

aggcaagttt gcctccacct ttgacaagaa ttttcgttgt catgtcctca 950

aactgcccta ccaaggaaat gccaccatgc tggtggtcct catggagaaa 1000

atgggtgacc acctcgccct tgaagactac ctgaccacag acttggtgga 1050

gacatggctc agaaacatga aaaccagaaa catggaagtt ttctttccga 1100

agttcaagct agatcagaag tatgagatgc atgagctgct taggcagatg 1150

ggaatcagaa gaatcttctc accctttgct gaccttagtg aactctcagc 1200

tactggaaga aatctccaag tatccagggt tttacgaaga acagtgattg 1250

aagttgatga aaggggcact gaggcagtgg caggaatctt gtcagaaatt 1300

actgcttatt ccatgcctcc tgtcatcaaa gtggaccggc catttcattt 1350

catgatctat gaagaaacct ctggaatgct tctgtttctg ggcagggtgg 1400

tgaatccgac tctcctataa ttcaggacat gcataagcac ttcgtgctgt 1450

agtagatgct gaatctgagg tatcaaacac acacaggata ccagcaatgg 1500

atggcagggg agagtgttcc ttttgttctt aactagttta gggtgttctc 1550

aaataaatac agtagtcccc acttatctga gggggataca ttcaaagacc 1600

cccagcagat gcctgaaacg gtggacagtg ctgaacctta tatatatttt 1650

ttcctacaca tacataccta tgataaagtt taatttataa attaggcaca 1700

gtaagagatt aacaataata acaacattaa gtaaaatgag ttacttgaac 1750

gcaagcactg caataccata acagtcaaac tgattataga gaaggctact 1800

aagtgactca tgggcgagga gcatagacag tgtggagaca ttgggcaagg 1850

ggagaattca catcctgggt gggacagagc aggacgatgc aagattccat 1900

cccactactc agaatggcat gctgcttaag acttttagat tgtttatttc 1950

tggaattttt catttaatgt ttttggacca tggttgacca tggttaactg 2000

agactgcaga aagcaaaacc atggataagg gaggactact acaaaagcat 2050

taaattgata catatttttt aaaaaaaaaa aaaaaaaa 2089
```

354

<210> 410
<211> 444
<212> PRT
<213> Homo sapiens

<400> 410

```
Met Lys Val Val Pro Ser Leu Leu Leu Ser Val Leu Leu Ala Gln
 1               5                  10                  15

Val Trp Leu Val Pro Gly Leu Ala Pro Ser Pro Gln Ser Pro Glu
                20                  25                  30

Thr Pro Ala Pro Gln Asn Gln Thr Ser Arg Val Val Gln Ala Pro
                35                  40                  45

Arg Glu Glu Glu Glu Asp Glu Gln Glu Ala Ser Glu Glu Lys Ala
                50                  55                  60

Gly Glu Glu Glu Lys Ala Trp Leu Met Ala Ser Arg Gln Gln Leu
                65                  70                  75

Ala Lys Glu Thr Ser Asn Phe Gly Phe Ser Leu Leu Arg Lys Ile
                80                  85                  90

Ser Met Arg His Asp Gly Asn Met Val Phe Ser Pro Phe Gly Met
                95                  100                 105

Ser Leu Ala Met Thr Gly Leu Met Leu Gly Ala Thr Gly Pro Thr
                110                 115                 120

Glu Thr Gln Ile Lys Arg Gly Leu His Leu Gln Ala Leu Lys Pro
                125                 130                 135

Thr Lys Pro Gly Leu Leu Pro Ser Leu Phe Lys Gly Leu Arg Glu
                140                 145                 150

Thr Leu Ser Arg Asn Leu Glu Leu Gly Leu Ser Gln Gly Ser Phe
                155                 160                 165

Ala Phe Ile His Lys Asp Phe Asp Val Lys Glu Thr Phe Phe Asn
                170                 175                 180

Leu Ser Lys Arg Tyr Phe Asp Thr Glu Cys Val Pro Met Asn Phe
                185                 190                 195

Arg Asn Ala Ser Gln Ala Lys Arg Leu Met Asn His Tyr Ile Asn
                200                 205                 210

Lys Glu Thr Arg Gly Lys Ile Pro Lys Leu Phe Asp Glu Ile Asn
                215                 220                 225

Pro Glu Thr Lys Leu Ile Leu Val Asp Tyr Ile Leu Phe Lys Gly
                230                 235                 240

Lys Trp Leu Thr Pro Phe Asp Pro Val Phe Thr Glu Val Asp Thr
                245                 250                 255

Phe His Leu Asp Lys Tyr Lys Thr Ile Lys Val Pro Met Met Tyr
                260                 265                 270

Gly Ala Gly Lys Phe Ala Ser Thr Phe Asp Lys Asn Phe Arg Cys
                275                 280                 285
```

```
His Val Leu Lys Leu Pro Tyr Gln Gly Asn Ala Thr Met Leu Val
                290                 295                 300

Val Leu Met Glu Lys Met Gly Asp His Leu Ala Leu Glu Asp Tyr
                305                 310                 315

Leu Thr Thr Asp Leu Val Glu Thr Trp Leu Arg Asn Met Lys Thr
                320                 325                 330

Arg Asn Met Glu Val Phe Phe Pro Lys Phe Lys Leu Asp Gln Lys
                335                 340                 345

Tyr Glu Met His Glu Leu Leu Arg Gln Met Gly Ile Arg Arg Ile
                350                 355                 360

Phe Ser Pro Phe Ala Asp Leu Ser Glu Leu Ser Ala Thr Gly Arg
                365                 370                 375

Asn Leu Gln Val Ser Arg Val Leu Arg Arg Thr Val Ile Glu Val
                380                 385                 390

Asp Glu Arg Gly Thr Glu Ala Val Ala Gly Ile Leu Ser Glu Ile
                395                 400                 405

Thr Ala Tyr Ser Met Pro Pro Val Ile Lys Val Asp Arg Pro Phe
                410                 415                 420

His Phe Met Ile Tyr Glu Glu Thr Ser Gly Met Leu Leu Phe Leu
                425                 430                 435

Gly Arg Val Val Asn Pro Thr Leu Leu
                440
```

<210> 411
<211> 636
<212> DNA
<213> Homo sapiens

<400> 411
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ctgggatcag ccactgcagc tccctgagca ctctctacag agacgcggac 50

cccagacatg aggaggctcc tcctggtcac cagcctggtg gttgtgctgc 100

tgtgggaggc aggtgcagtc ccagcaccca aggtccctat caagatgcaa 150

gtcaaacact ggccctcaga gcaggaccca gagaaggcct ggggcgcccg 200

tgtggtggag cctccggaga aggacgacca gctggtggtg ctgttccctg 250

tccagaagcc gaaactcttg accaccgagg agaagccacg aggtcagggc 300

aggggcccca tccttccagg caccaaggcc tggatggaga ccgaggacac 350

cctgggccgt gtcctgagtc ccgagcccga ccatgacagc ctgtaccacc 400

ctccgcctga ggaggaccag ggcgaggaga ggccccggtt gtgggtgatg 450

ccaaatcacc aggtgctcct gggaccggag gaagaccaag accacatcta 500

ccaccccag tagggctcca ggggccatca ctgcccccgc cctgtcccaa 550

ggcccaggct gttgggactg ggaccctccc taccctgccc cagctagaca 600
```

356

aataaacccc agcaggcaaa aaaaaaaaaa aaaaaa 636

<210> 412
<211> 151
<212> PRT
<213> Homo sapiens

<400> 412
```
Met Arg Arg Leu Leu Leu Val Thr Ser Leu Val Val Val Leu Leu
  1               5                  10                  15

Trp Glu Ala Gly Ala Val Pro Ala Pro Lys Val Pro Ile Lys Met
               20                  25                  30

Gln Val Lys His Trp Pro Ser Glu Gln Asp Pro Glu Lys Ala Trp
               35                  40                  45

Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp Asp Gln Leu Val
               50                  55                  60

Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr Thr Glu Glu
               65                  70                  75

Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly Thr Lys
               80                  85                  90

Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser Pro
               95                 100                 105

Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp
              110                 115                 120

Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln
              125                 130                 135

Val Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro
              140                 145                 150

Gln
```

<210> 413
<211> 1176
<212> DNA
<213> Homo sapiens

<400> 413
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agaaagctgc actctgttga gctccagggc gcagtggagg gagggagtga 50

aggagctctc tgtacccaag gaaagtgcag ctgagactca gacaagatta 100

caatgaacca actcagcttc ctgctgtttc tcatagcgac caccagagga 150

tggagtacag atgaggctaa tacttacttc aaggaatgga cctgttcttc 200

gtctccatct ctgcccagaa gctgcaagga aatcaaagac gaatgtccta 250

gtgcatttga tggcctgtat tttctccgca ctgagaatgg tgttatctac 300

cagaccttct gtgacatgac ctctgggggt ggcggctgga ccctggtggc 350

cagcgtgcat gagaatgaca tgcgtgggaa gtgcacggtg ggcgatcgct 400
```

```
ggtccagtca gcagggcagc aaagcagact acccagaggg ggacggcaac 450

tgggccaact acaacacctt tggatctgca gaggcggcca cgagcgatga 500

ctacaagaac cctggctact acgacatcca ggccaaggac ctgggcatct 550

ggcacgtgcc caataagtcc cccatgcagc actggagaaa cagctccctg 600

ctgaggtacc gcacggacac tggcttcctc cagacactgg gacataatct 650

gtttggcatc taccagaaat atccagtgaa atatggagaa ggaaagtgtt 700

ggactgacaa cggcccggtg atccctgtgg tctatgattt tggcgacgcc 750

cagaaaacag catcttatta ctcaccctat ggccagcggg aattcactgc 800

gggatttgtt cagttcaggg tatttaataa cgagagagca gccaacgcct 850

tgtgtgctgg aatgagggtc accggatgta acactgagca tcactgcatt 900

ggtggaggag gatactttcc agaggccagt ccccagcagt gtggagattt 950

ttctggtttt gattggagtg gatatggaac tcatgttggt tacagcagca 1000

gccgtgagat aactgaggca gctgtgcttc tattctatcg ttgagagttt 1050

tgtgggaggg aacccagacc tctcctccca accatgagat cccaaggatg 1100

gagaacaact tacccagtag ctagaatgtt aatggcagaa gagaaaacaa 1150

taaatcatat tgactcaaga aaaaaa 1176
```

```
<210> 414
<211> 313
<212> PRT
<213> Homo sapiens

<400> 414
Met Asn Gln Leu Ser Phe Leu Leu Phe Leu Ile Ala Thr Thr Arg
1               5                   10                  15

Gly Trp Ser Thr Asp Glu Ala Asn Thr Tyr Phe Lys Glu Trp Thr
                20                  25                  30

Cys Ser Ser Ser Pro Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys
                35                  40                  45

Asp Glu Cys Pro Ser Ala Phe Asp Gly Leu Tyr Phe Leu Arg Thr
                50                  55                  60

Glu Asn Gly Val Ile Tyr Gln Thr Phe Cys Asp Met Thr Ser Gly
                65                  70                  75

Gly Gly Gly Trp Thr Leu Val Ala Ser Val His Glu Asn Asp Met
                80                  85                  90

Arg Gly Lys Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly
                95                  100                 105

Ser Lys Ala Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr
                110                 115                 120

Asn Thr Phe Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys
```

358

```
                125                    130                    135
  Asn Pro Gly Tyr Tyr Asp Ile Gln Ala Lys Asp Leu Gly Ile Trp
                    140                    145                    150
  His Val Pro Asn Lys Ser Pro Met Gln His Trp Arg Asn Ser Ser
                    155                    160                    165
  Leu Leu Arg Tyr Arg Thr Asp Thr Gly Phe Leu Gln Thr Leu Gly
                    170                    175                    180
  His Asn Leu Phe Gly Ile Tyr Gln Lys Tyr Pro Val Lys Tyr Gly
                    185                    190                    195
  Glu Gly Lys Cys Trp Thr Asp Asn Gly Pro Val Ile Pro Val Val
                    200                    205                    210
  Tyr Asp Phe Gly Asp Ala Gln Lys Thr Ala Ser Tyr Tyr Ser Pro
                    215                    220                    225
  Tyr Gly Gln Arg Glu Phe Thr Ala Gly Phe Val Gln Phe Arg Val
                    230                    235                    240
  Phe Asn Asn Glu Arg Ala Ala Asn Ala Leu Cys Ala Gly Met Arg
                    245                    250                    255
  Val Thr Gly Cys Asn Thr Glu His His Cys Ile Gly Gly Gly Gly
                    260                    265                    270
  Tyr Phe Pro Glu Ala Ser Pro Gln Gln Cys Gly Asp Phe Ser Gly
                    275                    280                    285
  Phe Asp Trp Ser Gly Tyr Gly Thr His Val Gly Tyr Ser Ser Ser
                    290                    295                    300
  Arg Glu Ile Thr Glu Ala Ala Val Leu Leu Phe Tyr Arg
                    305                    310
```

```
<400> 415
 gcggagccgg cgccggctgc gcagaggagc cgctctcgcc gccgccacct 50

 cggctgggag cccacgaggc tgccgcatcc tgccctcgga acaatgggac 100

 tcggcgcgcg aggtgcttgg gccgcgctgc tcctggggac gctgcaggtg 150

 ctagcgctgc tggggccgc ccatgaaagc gcagccatgg cggcatctgc 200

 aaacatagag aattctgggc ttccacacaa ctccagtgct aactcaacag 250

 agactctcca acatgtgcct tctgaccata caaatgaaac ttccaacagt 300

 actgtgaaac caccaacttc agttgcctca gactccagta atacaacggt 350

 caccaccatg aaacctacag cggcatctaa tacaacaaca ccagggatgg 400

 tctcaacaaa tatgacttct accaccttaa agtctacacc caaaacaaca 450

 agtgtttcac agaacacatc tcagatatca acatccacaa tgaccgtaac 500
```

```
ccacaatagt tcagtgacat ctgctgcttc atcagtaaca atcacaacaa 550

ctatgcattc tgaagcaaag aaaggatcaa aatttgatac tgggagcttt 600

gttggtggta ttgtattaac gctgggagtt ttatctattc tttacattgg 650

atgcaaaatg tattactcaa gaagaggcat tcggtatcga accatagatg 700

aacatgatgc catcatttaa ggaaatccat ggaccaagga tggaatacag 750

attgatgctg ccctatcaat taattttggt ttattaatag tttaaaacaa 800

tattctcttt ttgaaaatag tataaacagg ccatgcatat aatgtacagt 850

gtattacgta aatatgtaaa gattcttcaa ggtaacaagg gtttgggttt 900

tgaaataaac atctggatct tatagaccgt tcatacaatg gtttttagcaa 950

gttcatagta agacaaacaa gtcctatctt tttttttttgg ctggggtggg 1000

ggcattggtc acatatgacc agtaattgaa agacgtcatc actgaaagac 1050

agaatgccat ctgggcatac aaataagaag tttgtcacag cactcaggat 1100

tttgggtatc ttttgtagct cacataaaga acttcagtgc ttttcagagc 1150

tggatatatc ttaattacta atgccacaca gaaattatac aatcaaacta 1200

gatctgaagc ataatttaag aaaaacatca acatttttttg tgctttaaac 1250

tgtagtagtt ggtctagaaa caaaatactc c 1281
```

<210> 416
<211> 208
<212> PRT
<213> Homo sapiens

<400> 416

```
Met Gly Leu Gly Ala Arg Gly Ala Trp Ala Ala Leu Leu Leu Gly
 1               5                  10                  15

Thr Leu Gln Val Leu Ala Leu Leu Gly Ala Ala His Glu Ser Ala
                20                  25                  30

Ala Met Ala Ala Ser Ala Asn Ile Glu Asn Ser Gly Leu Pro His
                35                  40                  45

Asn Ser Ser Ala Asn Ser Thr Glu Thr Leu Gln His Val Pro Ser
                50                  55                  60

Asp His Thr Asn Glu Thr Ser Asn Ser Thr Val Lys Pro Pro Thr
                65                  70                  75

Ser Val Ala Ser Asp Ser Ser Asn Thr Thr Val Thr Thr Met Lys
                80                  85                  90

Pro Thr Ala Ala Ser Asn Thr Thr Thr Pro Gly Met Val Ser Thr
                95                  100                 105

Asn Met Thr Ser Thr Thr Leu Lys Ser Thr Pro Lys Thr Thr Ser
                110                 115                 120

Val Ser Gln Asn Thr Ser Gln Ile Ser Thr Ser Thr Met Thr Val
```

Thr His Asn Ser Ser Val Thr Ser Ala Ala Ser Ser Val Thr Ile
                140   145   150

Thr Thr Thr Met His Ser Glu Ala Lys Lys Gly Ser Lys Phe Asp
                155   160   165

Thr Gly Ser Phe Val Gly Gly Ile Val Leu Thr Leu Gly Val Leu
                170   175   180

Ser Ile Leu Tyr Ile Gly Cys Lys Met Tyr Tyr Ser Arg Arg Gly
                185   190   195

Ile Arg Tyr Arg Thr Ile Asp Glu His Asp Ala Ile Ile
                200   205

<210> 417
<211> 1728
<212> DNA
<213> Homo sapiens

<400> 417
cagccgggtc ccaagcctgt gcctgagcct gagcctgagc ctgagcccga 50

gccgggagcc ggtcgcgggg gctccgggct gtgggaccgc tgggccccca 100

gcgatggcga ccctgtgggg aggccttctt cggcttggct ccttgctcag 150

cctgtcgtgc ctggcgcttt ccgtgctgct gctggcgcag ctgtcagacg 200

ccgccaagaa tttcgaggat gtcagatgta aatgtatctg ccctccctat 250

aaagaaaatt ctgggcatat ttataataag aacatatctc agaaagattg 300

tgattgcctt catgttgtgg agcccatgcc tgtgcggggg cctgatgtag 350

aagcatactg tctacgctgt gaatgcaaat atgaagaaag aagctctgtc 400

acaatcaagg ttaccattat aatttatctc tccattttgg gccttctact 450

tctgtacatg gtatatctta ctctggttga gcccatactg aagaggcgcc 500

tctttggaca tgcacagttg atacagagtg atgatgatat tggggatcac 550

cagccttttg caaatgcaca cgatgtgcta gcccgctccc gcagtcgagc 600

caacgtgctg aacaaggtag aatatgcaca gcagcgctgg aagcttcaag 650

tccaagagca gcgaaagtct gtctttgacc ggcatgttgt cctcagctaa 700

ttgggaattg aattcaaggt gactagaaag aaacaggcag acaactggaa 750

agaactgact gggtttttgct gggtttcatt ttaatacctt gttgatttca 800

ccaactgttg ctggaagatt caaaactgga agcaaaaact tgcttgattt 850

tttttcttg ttaacgtaat aatagagaca tttttaaaag cacacagctc 900

aaagtcagcc aataagtctt ttcctatttg tgacttttac taataaaaat 950

aaatctgcct gtaaattatc ttgaagtcct ttacctggaa caagcactct 1000

```
cttttttcacc acatagtttt aacttgactt tcaagataat tttcagggtt 1050

tttgttgttg ttgttttttg tttgtttgtt ttggtgggag aggggaggga 1100

tgcctgggaa gtggttaaca actttttttca agtcacttta ctaaacaaac 1150

ttttgtaaat agaccttacc ttctattttc gagtttcatt tatattttgc 1200

agtgtagcca gcctcatcaa agagctgact tactcatttg acttttgcac 1250

tgactgtatt atctgggtat ctgctgtgtc tgcacttcat ggtaaacggg 1300

atctaaaatg cctggtggct tttcacaaaa agcagatttt cttcatgtac 1350

tgtgatgtct gatgcaatgc atcctagaac aaactggcca tttgctagtt 1400

tactctaaag actaaacata gtcttggtgt gtgtggtctt actcatcttc 1450

tagtaccttt aaggacaaat cctaaggact tggacacttg caataaagaa 1500

attttatttt aaacccaagc ctccctggat tgataatata tacacatttg 1550

tcagcatttc cggtcgtggt gagaggcagc tgtttgagct ccaatatgtg 1600

cagctttgaa ctagggctgg ggttgtgggt gcctcttctg aaaggtctaa 1650

ccattattgg ataactggct tttttcttcc tatgtcctct ttggaatgta 1700

acaataaaaa taatttttga aacatcaa 1728
```

<210> 418
<211> 198
<212> PRT
<213> Homo sapiens

<400> 418
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Met Ala Thr Leu Trp Gly Gly Leu Leu Arg Leu Gly Ser Leu Leu
  1               5                  10                  15

Ser Leu Ser Cys Leu Ala Leu Ser Val Leu Leu Leu Ala Gln Leu
             20                  25                  30

Ser Asp Ala Ala Lys Asn Phe Glu Asp Val Arg Cys Lys Cys Ile
             35                  40                  45

Cys Pro Pro Tyr Lys Glu Asn Ser Gly His Ile Tyr Asn Lys Asn
             50                  55                  60

Ile Ser Gln Lys Asp Cys Asp Cys Leu His Val Val Glu Pro Met
             65                  70                  75

Pro Val Arg Gly Pro Asp Val Glu Ala Tyr Cys Leu Arg Cys Glu
             80                  85                  90

Cys Lys Tyr Glu Glu Arg Ser Ser Val Thr Ile Lys Val Thr Ile
             95                 100                 105

Ile Ile Tyr Leu Ser Ile Leu Gly Leu Leu Leu Leu Tyr Met Val
            110                 115                 120

Tyr Leu Thr Leu Val Glu Pro Ile Leu Lys Arg Arg Leu Phe Gly
            125                 130                 135
```

362

```
His Ala Gln Leu Ile Gln Ser Asp Asp Asp Ile Gly Asp His Gln
                140                 145                 150

Pro Phe Ala Asn Ala His Asp Val Leu Ala Arg Ser Arg Ser Arg
                155                 160                 165

Ala Asn Val Leu Asn Lys Val Glu Tyr Ala Gln Gln Arg Trp Lys
                170                 175                 180

Leu Gln Val Gln Glu Gln Arg Lys Ser Val Phe Asp Arg His Val
                185                 190                 195

Val Leu Ser
```

<210> 419
<211> 681
<212> DNA
<213> Homo sapiens

<400> 419
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 gcacctgcga ccaccgtgag cagtcatggc gtactccaca gtgcagagag 50

 tcgctctggc ttctgggctt gtcctggctc tgtcgctgct gctgcccaag 100

 gccttcctgt cccgcgggaa gcggcaggag ccgccgccga cacctgaagg 150

 aaaattgggc cgatttccac ctatgatgca tcatcaccag gcaccctcag 200

 atggccagac tcctggggct cgtttccaga ggtctcacct tgccgaggca 250

 tttgcaaagg ccaaaggatc aggtggaggt gctggaggag gaggtagtgg 300

 aagaggtctg atggggcaga ttattccaat ctacggtttt gggatttttt 350

 tatatatact gtacattcta tttaaggtaa gtagaatcat cctaatcata 400

 ttacatcaat gaaaatctaa tatggcgata aaaatcattg tctacattaa 450

 aacttcttat agttcataaa attatttcaa atccatcatc tctttaaatc 500

 ctgcctcctc ttcatgaggt acttaggata gccattattt cagtttcaca 550

 taagaatgtt tactcaatgt ttaagtgttt tgccccaaaa ttcacaacta 600

 acaaggcaga actaggactt gaacatggat cttttggttc ttaatccagt 650

 gagtgataca attcaatgca ctcccctgcc a 681
```

<210> 420
<211> 128
<212> PRT
<213> Homo sapiens

<400> 420
```
 Met Ala Tyr Ser Thr Val Gln Arg Val Ala Leu Ala Ser Gly Leu
   1               5                  10                  15

 Val Leu Ala Leu Ser Leu Leu Leu Pro Lys Ala Phe Leu Ser Arg
                 20                  25                  30

 Gly Lys Arg Gln Glu Pro Pro Pro Thr Pro Glu Gly Lys Leu Gly
                 35                  40                  45
```

```
Arg Phe Pro Pro Met Met His His His Gln Ala Pro Ser Asp Gly
                50              55              60

Gln Thr Pro Gly Ala Arg Phe Gln Arg Ser His Leu Ala Glu Ala
                65              70              75

Phe Ala Lys Ala Lys Gly Ser Gly Gly Gly Ala Gly Gly Gly Gly
                80              85              90

Ser Gly Arg Gly Leu Met Gly Gln Ile Ile Pro Ile Tyr Gly Phe
                95             100             105

Gly Ile Phe Leu Tyr Ile Leu Tyr Ile Leu Phe Lys Val Ser Arg
               110             115             120

Ile Ile Leu Ile Ile Leu His Gln
               125
```

<210> 421
<211> 1630
<212> DNA
<213> Homo sapiens

<400> 421

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cggctcgagt gcagctgtgg ggagatttca gtgcattgcc tcccctgggt 50

gctcttcatc ttggatttga aagttgagag cagcatgttt tgcccactga 100

aactcatcct gctgccagtg ttactggatt attccttggg cctgaatgac 150

ttgaatgttt ccccgcctga gctaacagtc catgtgggtg attcagctct 200

gatgggatgt gtttccaga gcacagaaga caaatgtata ttcaagatag 250

actggactct gtcaccagga gagcacgcca aggacgaata tgtgctatac 300

tattactcca atctcagtgt gcctattggg cgcttccaga accgcgtaca 350

cttgatgggg gacatcttat gcaatgatgg ctctctcctg ctccaagatg 400

tgcaagaggc tgaccaggga acctatatct gtgaaatccg cctcaaaggg 450

gagagccagg tgttcaagaa ggcggtggta ctgcatgtgc ttccagagga 500

gcccaaagag ctcatggtcc atgtgggtgg attgattcag atgggatgtg 550

ttttccagag cacagaagtg aaaacgtga ccaaggtaga atggatattt 600

tcaggacggc gcgcaaagga ggagattgta tttcgttact accacaaact 650

caggatgtct gtggagtact cccagagctg gggccacttc cagaatcgtg 700

tgaacctggt gggggacatt ttccgcaatg acggttccat catgcttcaa 750

ggagtgaggg agtcagatgg aggaaactac acctgcagta tccacctagg 800

gaacctggtg ttcaagaaaa ccattgtgct gcatgtcagc ccggaagagc 850

ctcgaacact ggtgaccccg gcagccctga ggcctctggt cttgggtggt 900

aatcagttgg tgatcattgt gggaattgtc tgtgccacaa tcctgctgct 950

ccctgttctg atattgatcg tgaagaagac ctgtggaaat aagagttcag 1000
```

```
tgaattctac agtcttggtg aagaacacga agaagactaa tccagagata 1050

aaagaaaaac cctgccattt tgaaagatgt gaaggggaga aacacattta 1100

ctccccaata attgtacggg aggtgatcga ggaagaagaa ccaagtgaaa 1150

aatcagaggc cacctacatg accatgcacc cagtttggcc ttctctgagg 1200

tcagatcgga acaactcact tgaaaaaaag tcaggtgggg gaatgccaaa 1250

aacacagcaa gcctttttgag aagaatggag agtcccttca tctcagcagc 1300

ggtggagact ctctcctgtg tgtgtcctgg gccactctac cagtgatttc 1350

agactcccgc tctcccagct gtcctcctgt ctcattgttt ggtcaataca 1400

ctgaagatgg agaatttgga gcctggcaga gagactggac agctctggag 1450

gaacaggcct gctgagggga ggggagcatg gacttggcct ctggagtggg 1500

acactggccc tgggaaccag gctgagctga gtggcctcaa acccccgtt 1550

ggatcagacc ctcctgtggg cagggttctt agtggatgag ttactgggaa 1600

gaatcagaga taaaaaccaa cccaaatcaa 1630
```

<210> 422
<211> 394
<212> PRT
<213> Homo sapiens

<400> 422
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Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Asp
1               5                   10                  15

Tyr Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu
                20                  25                  30

Thr Val His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln
                35                  40                  45

Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser
                50                  55                  60

Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser
                65                  70                  75

Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg Val His Leu
                80                  85                  90

Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu Gln Asp
                95                  100                 105

Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg Leu
                110                 115                 120

Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val
                125                 130                 135

Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu
                140                 145                 150

Ile Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val
```
365

```
              155                  160                  165
Thr Lys Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu
              170                  175                  180
Ile Val Phe Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr
              185                  190                  195
Ser Gln Ser Trp Gly His Phe Gln Asn Arg Val Asn Leu Val Gly
              200                  205                  210
Asp Ile Phe Arg Asn Asp Gly Ser Ile Met Leu Gln Gly Val Arg
              215                  220                  225
Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser Ile His Leu Gly Asn
              230                  235                  240
Leu Val Phe Lys Lys Thr Ile Val Leu His Val Ser Pro Glu Glu
              245                  250                  255
Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro Leu Val Leu
              260                  265                  270
Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys Ala Thr
              275                  280                  285
Ile Leu Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr Cys
              290                  295                  300
Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr
              305                  310                  315
Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu
              320                  325                  330
Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg
              335                  340                  345
Glu Val Ile Glu Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr
              350                  355                  360
Tyr Met Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg
              365                  370                  375
Asn Asn Ser Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr
              380                  385                  390
Gln Gln Ala Phe
```

<210> 423
<211> 963
<212> DNA
<213> Homo sapiens

<400> 423
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 ctatgaagaa gcttcctgga aaacaataag caaaggaaaa caaatgtgtc 50
 ccatctcaca tggttctacc ctactaaaga caggaagatc ataaactgac 100
 agatactgaa attgtaagag ttggaaacta cattttgcaa agtcattgaa 150
 ctctgagctc agttgcagta ctcgggaagc catgcaggat gaagatggat 200
```

366

```
acatcacctt aaatattaaa actcggaaac cagctctcgt ctccgttggc 250

cctgcatcct cctcctggtg gcgtgtgatg gctttgattc tgctgatcct 300

gtgcgtgggg atggttgtcg ggctggtggc tctggggatt tggtctgtca 350

tgcagcgcaa ttacctacaa gatgagaatg aaaatcgcac aggaactctg 400

caacaattag caaagcgctt ctgtcaatat gtggtaaaac aatcagaact 450

aaagggcact ttcaaaggtc ataaatgcag cccctgtgac acaaactgga 500

gatattatgg agatagctgc tatgggttct tcaggcacaa cttaacatgg 550

gaagagagta agcagtactg cactgacatg aatgctactc tcctgaagat 600

tgacaaccgg aacattgtgg agtacatcaa agccaggact catttaattc 650

gttgggtcgg attatctcgc cagaagtcga atgaggtctg gaagtgggag 700

gatggctcgg ttatctcaga aaatatgttt gagtttttgg aagatggaaa 750

aggaaatatg aattgtgctt attttcataa tgggaaaatg caccctacct 800

tctgtgagaa caaacattat ttaatgtgtg agaggaaggc tggcatgacc 850

aaggtggacc aactacctta atgcaaagag gtggacagga taacacagat 900

aagggcttta ttgtacaata aaagatatgt atgaatgcat cagtagctga 950

aaaaaaaaaa aaa 963

<210> 424
<211> 229
<212> PRT
<213> Homo sapiens

<400> 424
Met Gln Asp Glu Asp Gly Tyr Ile Thr Leu Asn Ile Lys Thr Arg
 1               5                  10                  15

Lys Pro Ala Leu Val Ser Val Gly Pro Ala Ser Ser Ser Trp Trp
                20                  25                  30

Arg Val Met Ala Leu Ile Leu Leu Ile Leu Cys Val Gly Met Val
                35                  40                  45

Val Gly Leu Val Ala Leu Gly Ile Trp Ser Val Met Gln Arg Asn
                50                  55                  60

Tyr Leu Gln Asp Glu Asn Glu Asn Arg Thr Gly Thr Leu Gln Gln
                65                  70                  75

Leu Ala Lys Arg Phe Cys Gln Tyr Val Val Lys Gln Ser Glu Leu
                80                  85                  90

Lys Gly Thr Phe Lys Gly His Lys Cys Ser Pro Cys Asp Thr Asn
                95                  100                 105

Trp Arg Tyr Tyr Gly Asp Ser Cys Tyr Gly Phe Phe Arg His Asn
                110                 115                 120

Leu Thr Trp Glu Glu Ser Lys Gln Tyr Cys Thr Asp Met Asn Ala
```

367

Thr Leu Leu Lys Ile Asp Asn Arg Asn Ile Val Glu Tyr Ile Lys
                140   145   150

Ala Arg Thr His Leu Ile Arg Trp Val Gly Leu Ser Arg Gln Lys
                155   160   165

Ser Asn Glu Val Trp Lys Trp Glu Asp Gly Ser Val Ile Ser Glu
                170   175   180

Asn Met Phe Glu Phe Leu Glu Asp Gly Lys Gly Asn Met Asn Cys
                185   190   195

Ala Tyr Phe His Asn Gly Lys Met His Pro Thr Phe Cys Glu Asn
                200   205   210

Lys His Tyr Leu Met Cys Glu Arg Lys Ala Gly Met Thr Lys Val
                215   220   225

Asp Gln Leu Pro

<210> 425
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 425
 tgcagcccct gtgacacaaa ctgg 24

<210> 426
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 426
 ctgagataac cgagccatcc tcccac 26

<210> 427
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 427
 gcttcctgac actaaggctg tctgctagtc agaattgcct caaaaagag 49

<210> 428
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 428
 ccaccaatgg cagccccacc t 21

<210> 429
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 429
 gactgccctc cctgcca 17

<210> 430
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 430
 caaaaagcct ggaagtcttc aaag 24

<210> 431
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 431
 cagctggact gcaggtgcta 20

<210> 432
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 432
 cagtgagcac agcaagtgtc ct 22

<210> 433
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 433
 ggccacctcc ttgagtcttc agttccct 28

<210> 434
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 434
 caactactgg ctaaagctgg tgaa 24

<210> 435
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 435
 cctttctgta taggtgatac ccaatga 27

<210> 436
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 436
 tggccatccc taccagaggc aaaa 24

<210> 437
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 437
 ctgaagacga cgcggattac ta 22

<210> 438
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 438
 ggcagaaatg ggaggcaga 19

<210> 439
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 439
 tgctctgttg gctacggctt tagtccctag 30

<210> 440
<211> 22

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 440
agcagcagcc atgtagaatg aa 22

<210> 441
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 441
aatacgaaca gtgcacgctg at 22

<210> 442
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 442
tccagagagc caagcacggc aga 23

<210> 443
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 443
tctagccagc ttggctccaa ta 22

<210> 444
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 444
cctggctcta gcaccaactc ata 23

<210> 445
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 445
tcagtggccc taaggagatg ggcct 25

```
<210> 446
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 446
 caggatacag tgggaatctt gaga 24

<210> 447
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 447
 cctgaagggc ttggagctta gt 22

<210> 448
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 448
 tctttggcca tttcccatgg ctca 24

<210> 449
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 449
 cccatggcga ggaggaat 18

<210> 450
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 450
 tgcgtacgtg tgccttcag 19

<210> 451
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe
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<400> 451
 cagcacccca ggcagtctgt gtgt 24

<210> 452
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 452
 aacgtgctac acgaccagtg tact 24

<210> 453
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 453
 cacagcatat tcagatgact aaatcca 27

<210> 454
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 454
 ttgtttagtt ctccaccgtg tctccacaga a 31

<210> 455
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 455
 tgtcagaatg caacctggct t 21

<210> 456
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 456
 tgatgtgcct ggctcagaac 20

<210> 457
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 457
 tgcacctaga tgtccccagc accc 24

<210> 458
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 458
 aagatgcgcc aggcttctta 20

<210> 459
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 459
 ctcctgtacg gtctgctcac ttat 24

<210> 460
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 460
 tggctgtcag tccagtgtgc atgg 24

<210> 461
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 461
 gcatagggat agataagatc ctgctttat 29

<210> 462
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 462
 caaattaaag tacccatcag gagagaa 27

<210> 463
<211> 37

374

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<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 463
 aagttgctaa atatatacat tatctgcgcc aagtcca 37

<210> 464
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 464
 gtgctgccca caattcatga 20

<210> 465
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 465
 gtccttggta tgggtctgaa ttatat 26

<210> 466
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 466
 actctctgca ccccacagtc accactatct c 31

<210> 467
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 467
 ctgaggaacc agccatgtct ct 22

<210> 468
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 468
 gaccagatgc aggtacagga tga 23
```

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<210> 469
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 469
 ctgccccttc agtgatgcca acctt 25

<210> 470
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 470
 gggtggaggc tcactgagta ga 22

<210> 471
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 471
 caatacaggt aatgaaactc tgcttctt 28

<210> 472
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 472
 tcctcttaag cataggccat tttctcagtt tagaca 36

<210> 473
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 473
 ggtggtcttg cttggtctca c 21

<210> 474
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe
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```
<400> 474
 ccgtcgttca gcaacatgac 20

<210> 475
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 475
 accgcctacc gctgtgccca 20

<210> 476
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 476
 cagtaaaacc acaggctgga ttt 23

<210> 477
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 477
 cctgagagca agaaggttga gaat 24

<210> 478
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 478
 tagacaggga ccatggcccg ca 22

<210> 479
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 479
 tgggctgtag aagagttgtt g 21

<210> 480
<211> 20
<212> DNA
<213> Artificial Sequence
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377

<220>
<223> Synthetic oligonucleotide probe

<400> 480
 tccacacttg gccagtttat 20

<210> 481
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 481
 cccaacttct cccttttgga ccct 24

<210> 482
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 482
 gtcccttcac tgtttagagc atga 24

<210> 483
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 483
 actctccccc tcaacagcct cctgag 26

<210> 484
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 484
 gtggtcaggg cagatccttt 20

<210> 485
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 485
 acagatccag gagagactcc aca 23

<210> 486
<211> 21

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 486
agcggcgctc ccagcctgaa t 21

<210> 487
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 487
catgattggt cctcagttcc atc 23

<210> 488
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 488
atagagggct cccagaagtg 20

<210> 489
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 489
cagggccttc agggccttca c 21

<210> 490
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 490
gctcagccaa acactgtca 19

<210> 491
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 491
ggggccctga cagtgtt 17

<210> 492
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 492
 ctgagccgag actggagcat ctacac 26

<210> 493
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 493
 gtgggcagcg tcttgtc 17

<210> 494
<211> 1231
<212> DNA
<213> Homo Sapien

<400> 494
 cccacgcgtc cgcgcagtcg cgcagttctg cctccgcctg ccagtctcgc 50

 ccgcgatccc ggcccggggc tgtggcgtcg actccgaccc aggcagccag 100

 cagcccgcgc gggagccgga ccgccgccgg aggagctcgg acggcatgct 150

 gagccccctc ctttgctgaa gcccgagtgc ggagaagccc gggcaaacgc 200

 aggctaagga gaccaaagcg gcgaagtcgc gagacagcgg acaagcagcg 250

 gaggagaagg aggaggaggc gaacccagag aggggcagca aaagaagcgg 300

 tggtggtggg cgtcgtggcc atggcggcgg ctatcgccag ctcgctcatc 350

 cgtcagaaga ggcaagcccg cgagcgcgag aaatccaacg cctgcaagtg 400

 tgtcagcagc cccagcaaag gcaagaccag ctgcgacaaa aacaagttaa 450

 atgtcttttc ccgggtcaaa ctcttcggct ccaagaagag gcgcagaaga 500

 agaccagagc ctcagcttaa gggtatagtt accaagctat acagccgaca 550

 aggctaccac ttgcagctgc aggcggatgg aaccattgat ggcaccaaag 600

 atgaggacag cacttacact ctgttttaacc tcatccctgt gggtctgcga 650

 gtggtggcta tccaaggagt tcaaaccaag ctgtacttgg caatgaacag 700

 tgagggatac ttgtacacct cggaactttt cacacctgag tgcaaattca 750

 aagaatcagt gtttgaaaat tattatgtga catattcatc aatgatatac 800

 cgtcagcagc agtcaggccg agggtggtat ctgggtctga caaagaagg 850

 agagatcatg aaaggcaacc atgtgaagaa gaacaagcct gcagctcatt 900

```
ttctgcctaa accactgaaa gtggccatgt acaaggagcc atcactgcac 950

gatctcacgg agttctcccg atctggaagc gggaccccaa ccaagagcag 1000

aagtgtctct ggcgtgctga acggaggcaa atccatgagc cacaatgaat 1050

caacgtagcc agtgagggca aagaagggc tctgtaacag aaccttacct 1100

ccaggtgctg ttgaattctt ctagcagtcc ttcacccaaa agttcaaatt 1150

tgtcagtgac atttaccaaa caaacaggca gagttcacta ttctatctgc 1200

cattagacct tcttatcatc catactaaag c 1231
```

<210> 495
<211> 245
<212> PRT
<213> Homo Sapien

<400> 495

```
Met Ala Ala Ala Ile Ala Ser Ser Leu Ile Arg Gln Lys Arg Gln
 1               5                  10                  15

Ala Arg Glu Arg Glu Lys Ser Asn Ala Cys Lys Cys Val Ser Ser
                20                  25                  30

Pro Ser Lys Gly Lys Thr Ser Cys Asp Lys Asn Lys Leu Asn Val
                35                  40                  45

Phe Ser Arg Val Lys Leu Phe Gly Ser Lys Lys Arg Arg Arg Arg
                50                  55                  60

Arg Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu Tyr Ser
                65                  70                  75

Arg Gln Gly Tyr His Leu Gln Leu Gln Ala Asp Gly Thr Ile Asp
                80                  85                  90

Gly Thr Lys Asp Glu Asp Ser Thr Tyr Thr Leu Phe Asn Leu Ile
                95                  100                 105

Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Gln Thr Lys
                110                 115                 120

Leu Tyr Leu Ala Met Asn Ser Glu Gly Tyr Leu Tyr Thr Ser Glu
                125                 130                 135

Leu Phe Thr Pro Glu Cys Lys Phe Lys Glu Ser Val Phe Glu Asn
                140                 145                 150

Tyr Tyr Val Thr Tyr Ser Ser Met Ile Tyr Arg Gln Gln Gln Ser
                155                 160                 165

Gly Arg Gly Trp Tyr Leu Gly Leu Asn Lys Glu Gly Glu Ile Met
                170                 175                 180

Lys Gly Asn His Val Lys Lys Asn Lys Pro Ala Ala His Phe Leu
                185                 190                 195

Pro Lys Pro Leu Lys Val Ala Met Tyr Lys Glu Pro Ser Leu His
                200                 205                 210

Asp Leu Thr Glu Phe Ser Arg Ser Gly Ser Gly Thr Pro Thr Lys
```

381

    Ser Arg Ser Val Ser Gly Val Leu Asn Gly Gly Lys Ser Met Ser
                    230   235   240

    His Asn Glu Ser Thr
                    245

    <210> 496
    <211> 1471
    <212> DNA
    <213> Homo Sapien

    <400> 496
    ccaggatgga gctggggcct gtatagccat attattgttc tatgctacta 50

    gacatggggg ggacttggtg aaaaaggtat tatccagcca gagggtctgg 100

    gagccctgtc ttactgaacc tgggcaacct ggatattctg agacatattt 150

    tggggggatt tcagtgaaaa aagtggggga tcccctccat ttagagtgta 200

    gcaaaggaaa aaacaccaag gttgggttcc ttcctgacat tggcagtgcc 250

    ccagtagggg tgggatgagc gaatattccc aaagctaaag tcccacaccc 300

    tgtagattac aagagtggat ttggcaggag tgtgccccaa aatacagtgg 350

    aaaggtgcct gaagatattt aaaccacgtc ttggaaattt agtgggtctt 400

    ggctttggga taggtgaagt gaggacagac actggagagg agggaaaggg 450

    gacgttttca ataggaggca aaactcgagg gtgggatcca ctgaggagta 500

    cataggctgc tggatctggt ggagccagca ctgggcccac gggtggtaac 550

    tggctgctgt ggaggggggt acgtgagggg ggggtctggg gcttatcctc 600

    aggtcctgtg ggtggggcag cgagtcgggg cctgagcgtc aagagcatgc 650

    cctagtgagc gggctcctct gggggagccc agcgcgctcc gggcgcctgc 700

    cggtttgggg gtgtctcctc ccggggcgct atggcggcgc tggccagtag 750

    cctgatccgg cagaagcggg aggtccgcga gcccgggggc agccggccgg 800

    tgtcggcgca gcggcgcgtg tgtccccgcg gcaccaagtc cctttgccag 850

    aagcagctcc tcatcctgct gtccaaggtg cgactgtgcg ggggcggcc 900

    cgcgcggccg gaccgcggcc cggagcctca gctcaaaggc atcgtcacca 950

    aactgttctg ccgccagggt ttctacctcc aggcgaatcc cgacggaagc 1000

    atccagggca ccccagagga taccagctcc ttcacccact tcaacctgat 1050

    ccctgtgggc ctccgtgtgg tcaccatcca gagcgccaag ctgggtcact 1100

    acatggccat gaatgctgag ggactgctct acagttcgcc gcatttcaca 1150

    gctgagtgtc gctttaagga gtgtgtcttt gagaattact acgtcctgta 1200

    cgcctctgct ctctaccgcc agcgtcgttc tggccgggcc tggtacctcg 1250

```
gcctggacaa ggagggccag gtcatgaagg gaaaccgagt taagaagacc 1300

aaggcagctg cccactttct gcccaagctc ctggaggtgg ccatgtacca 1350

ggagccttct ctccacagtg tccccgaggc ctccccttcc agtccccctg 1400

cccccctgaaa tgtagtccct ggactggagg ttccctgcac tcccagtgag 1450

ccagccacca ccacaacctg t 1471
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<210> 497
<211> 225
<212> PRT
<213> Homo Sapien

<400> 497

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Met Ala Ala Leu Ala Ser Ser Leu Ile Arg Gln Lys Arg Glu Val
 1               5                  10                  15

Arg Glu Pro Gly Gly Ser Arg Pro Val Ser Ala Gln Arg Arg Val
                20                  25                  30

Cys Pro Arg Gly Thr Lys Ser Leu Cys Gln Lys Gln Leu Leu Ile
                35                  40                  45

Leu Leu Ser Lys Val Arg Leu Cys Gly Gly Arg Pro Ala Arg Pro
                50                  55                  60

Asp Arg Gly Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu
                65                  70                  75

Phe Cys Arg Gln Gly Phe Tyr Leu Gln Ala Asn Pro Asp Gly Ser
                80                  85                  90

Ile Gln Gly Thr Pro Glu Asp Thr Ser Ser Phe Thr His Phe Asn
                95                  100                 105

Leu Ile Pro Val Gly Leu Arg Val Val Thr Ile Gln Ser Ala Lys
                110                 115                 120

Leu Gly His Tyr Met Ala Met Asn Ala Glu Gly Leu Leu Tyr Ser
                125                 130                 135

Ser Pro His Phe Thr Ala Glu Cys Arg Phe Lys Glu Cys Val Phe
                140                 145                 150

Glu Asn Tyr Tyr Val Leu Tyr Ala Ser Ala Leu Tyr Arg Gln Arg
                155                 160                 165

Arg Ser Gly Arg Ala Trp Tyr Leu Gly Leu Asp Lys Glu Gly Gln
                170                 175                 180

Val Met Lys Gly Asn Arg Val Lys Lys Thr Lys Ala Ala Ala His
                185                 190                 195

Phe Leu Pro Lys Leu Leu Glu Val Ala Met Tyr Gln Glu Pro Ser
                200                 205                 210

Leu His Ser Val Pro Glu Ala Ser Pro Ser Ser Pro Pro Ala Pro
                215                 220                 225
```

<210> 498
<211> 744

<212> DNA
<213> Homo Sapien

<400> 498
atggccgcgg ccatcgctag cggcttgatc cgccagaagc ggcaggcgcg 50

ggagcagcac tgggaccggc cgtctgccag caggaggcgg agcagcccca 100

gcaagaaccg cgggctctgc aacggcaacc tggtggatat cttctccaaa 150

gtgcgcatct tcggcctcaa gaagcgcagg ttgcggcgcc aagatcccca 200

gctcaagggt atagtgacca ggttatattg caggcaaggc tactacttgc 250

aaatgcaccc cgatggagct ctcgatggaa ccaaggatga cagcactaat 300

tctacactct tcaacctcat accagtggga ctacgtgttg ttgccatcca 350

gggagtgaaa acagggttgt atatagccat gaatggagaa ggttacctct 400

acccatcaga acttttacc cctgaatgca agtttaaaga atctgttttt 450

gaaaattatt atgtaatcta ctcatccatg ttgtacagac aacaggaatc 500

tggtagagcc tggttttttgg gattaaataa ggaagggcaa gctatgaaag 550

ggaacagagt aaagaaaacc aaaccagcag ctcattttct acccaagcca 600

ttggaagttg ccatgtaccg agaaccatct ttgcatgatg ttggggaaac 650

ggtcccgaag cctggggtga cgccaagtaa aagcacaagt gcgtctgcaa 700

taatgaatgg aggcaaacca gtcaacaaga gtaagacaac atag 744

<210> 499
<211> 247
<212> PRT
<213> Homo Sapien

<400> 499

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Met Ala Ala Ala Ile Ala Ser Gly Leu Ile Arg Gln Lys Arg Gln
  1               5                  10                  15

Ala Arg Glu Gln His Trp Asp Arg Pro Ser Ala Ser Arg Arg Arg
               20                  25                  30

Ser Ser Pro Ser Lys Asn Arg Gly Leu Cys Asn Gly Asn Leu Val
               35                  40                  45

Asp Ile Phe Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg
               50                  55                  60

Leu Arg Arg Gln Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu
               65                  70                  75

Tyr Cys Arg Gln Gly Tyr Tyr Leu Gln Met His Pro Asp Gly Ala
               80                  85                  90

Leu Asp Gly Thr Lys Asp Asp Ser Thr Asn Ser Thr Leu Phe Asn
               95                  100                 105

Leu Ile Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Lys
               110                 115                 120
```

```
Thr Gly Leu Tyr Ile Ala Met Asn Gly Glu Gly Tyr Leu Tyr Pro
            125                 130                 135

Ser Glu Leu Phe Thr Pro Glu Cys Lys Phe Lys Glu Ser Val Phe
            140                 145                 150

Glu Asn Tyr Tyr Val Ile Tyr Ser Ser Met Leu Tyr Arg Gln Gln
            155                 160                 165

Glu Ser Gly Arg Ala Trp Phe Leu Gly Leu Asn Lys Glu Gly Gln
            170                 175                 180

Ala Met Lys Gly Asn Arg Val Lys Lys Thr Lys Pro Ala Ala His
            185                 190                 195

Phe Leu Pro Lys Pro Leu Glu Val Ala Met Tyr Arg Glu Pro Ser
            200                 205                 210

Leu His Asp Val Gly Glu Thr Val Pro Lys Pro Gly Val Thr Pro
            215                 220                 225

Ser Lys Ser Thr Ser Ala Ser Ala Ile Met Asn Gly Gly Lys Pro
            230                 235                 240

Val Asn Lys Ser Lys Thr Thr
            245
```

<210> 500
<211> 2906
<212> DNA
<213> Homo Sapien

<400> 500
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 ggggagagga attgaccatg taaaaggaga cttttttttt tggtggtggt  50

 ggctgttggg tgccttgcaa aaatgaagga tgcaggacgc agctttctcc  100

 tggaaccgaa cgcaatggat aaactgattg tgcaagagag aaggaagaac  150

 gaagcttttt cttgtgagcc ctggatctta acacaaatgt gtatatgtgc  200

 acacaggag cattcaagaa tgaaataaac cagagttaga cccgcggggg  250

 ttggtgtgtt ctgacataaa taaataatct taaagcagct gttcccctcc  300

 ccaccccaa aaaaaggat gattggaaat gaagaaccga ggattcacaa  350

 agaaaaaagt atgttcattt ttctctataa aggagaaagt gagccaagga  400

 gatattttg gaatgaaaag tttggggctt ttttagtaaa gtaaagaact  450

 ggtgtggtgg tgtttccctt tctttttgaa tttcccacaa gaggagagga  500

 aattaataat acatctgcaa agaaatttca gagaagaaaa gttgaccgcg  550

 gcagattgag gcattgattg ggggagagaa accagcagag cacagttgga  600

 tttgtgccta tgttgactaa aattgacgga taattgcagt tggatttttc  650

 ttcatcaacc tcctttttt taaatttta ttccttttgg tatcaagatc  700

 atgcgttttc tcttgttctt aaccacctgg atttccatct ggatgttgct  750
```

```
gtgatcagtc tgaaatacaa ctgtttgaat tccagaagga ccaacaccag 800

ataaattatg aatgttgaac aagatgacct tacatccaca gcagataatg 850

ataggtccta ggtttaacag ggccctattt gaccccctgc ttgtggtgct 900

gctggctctt caacttcttg tggtggctgg tctggtgcgg gctcagacct 950

gcccttctgt gtgctcctgc agcaaccagt tcagcaaggt gatttgtgtt 1000

cggaaaaacc tgcgtgaggt tccggatggc atctccacca acacacggct 1050

gctgaacctc catgagaacc aaatccagat catcaaagtg aacagcttca 1100

agcacttgag gcacttggaa atcctacagt tgagtaggaa ccatatcaga 1150

accattgaaa ttggggcttt caatggtctg gcgaacctca acactctgga 1200

actctttgac aatcgtctta ctaccatccc gaatggagct tttgtatact 1250

tgtctaaact gaaggagctc tggttgcgaa acaaccccat tgaaagcatc 1300

ccttcttatg ctttttaacag aattccttct ttgcgccgac tagacttagg 1350

ggaattgaaa agactttcat acatctcaga aggtgccttt gaaggtctgt 1400

ccaacttgag gtatttgaac cttgccatgt gcaaccttcg ggaaatccct 1450

aacctcacac cgctcataaa actagatgag ctggatcttt ctgggaatca 1500

tttatctgcc atcaggcctg gctctttcca gggtttgatg caccttcaaa 1550

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gacaaccttc agtcactagt ggagatcaac ctggcacaca ataatctaac 1650

attactgcct catgacctct tcactccctt gcatcatcta gagcggatac 1700

atttacatca caacccttgg aactgtaact gtgacatact gtggctcagc 1750

tggtggataa aagacatggc cccctcgaac acagcttgtt gtgcccggtg 1800

taacactcct cccaatctaa aggggaggta cattggagag ctcgaccaga 1850

attacttcac atgctatgct ccggtgattg tggagccccc tgcagacctc 1900

aatgtcactg aaggcatggc agctgagctg aaatgtcggg cctccacatc 1950

cctgacatct gtatcttgga ttactccaaa tggaacagtc atgacacatg 2000

gggcgtacaa agtgcggata gctgtgctca gtgatggtac gttaaatttc 2050

acaaatgtaa ctgtgcaaga tacaggcatg tacacatgta tggtgagtaa 2100

ttccgttggg aatactactg cttcagccac cctgaatgtt actgcagcaa 2150

ccactactcc tttctcttac tttttcaaccg tcacagtaga gactatggaa 2200

ccgtctcagg atgaggcacg gaccacagat aacaatgtgg gtcccactcc 2250

agtggtcgac tgggagacca ccaatgtgac cacctctctc acaccacaga 2300

gcacaaggtc gacagagaaa accttcacca tcccagtgac tgatataaac 2350
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386

```
agtgggatcc caggaattga tgaggtcatg aagactacca aaatcatcat 2400

tgggtgtttt gtggccatca cactcatggc tgcagtgatg ctggtcattt 2450

tctacaagat gaggaagcag caccatcggc aaaaccatca cgccccaaca 2500

aggactgttg aaattattaa tgtggatgat gagattacgg gagacacacc 2550

catggaaagc cacctgccca tgcctgctat cgagcatgag cacctaaatc 2600

actataactc atacaaatct cccttcaacc acacaacaac agttaacaca 2650

ataaattcaa tacacagttc agtgcatgaa ccgttattga tccgaatgaa 2700

ctctaaagac aatgtacaag agactcaaat ctaaacatt tacagagtta 2750

caaaaaacaa acaatcaaaa aaaaagacag tttattaaaa atgcacaaa 2800

tgactggct aaatctactg tttcaaaaaa gtgtctttac aaaaaaacaa 2850

aaaagaaag aaatttattt attaaaaatt ctattgtgat ctaaagcaga 2900

caaaaa 2906
```

<210> 501
<211> 640
<212> PRT
<213> Homo Sapien

<400> 501
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Met Leu Asn Lys Met Thr Leu His Pro Gln Gln Ile Met Ile Gly
 1               5                  10                  15

Pro Arg Phe Asn Arg Ala Leu Phe Asp Pro Leu Leu Val Val Leu
            20                  25                  30

Leu Ala Leu Gln Leu Leu Val Val Ala Gly Leu Val Arg Ala Gln
            35                  40                  45

Thr Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val
            50                  55                  60

Ile Cys Val Arg Lys Asn Leu Arg Glu Val Pro Asp Gly Ile Ser
        65                  70                  75

Thr Asn Thr Arg Leu Leu Asn Leu His Glu Asn Gln Ile Gln Ile
            80                  85                  90

Ile Lys Val Asn Ser Phe Lys His Leu Arg His Leu Glu Ile Leu
            95                  100                 105

Gln Leu Ser Arg Asn His Ile Arg Thr Ile Glu Ile Gly Ala Phe
            110                 115                 120

Asn Gly Leu Ala Asn Leu Asn Thr Leu Glu Leu Phe Asp Asn Arg
            125                 130                 135

Leu Thr Thr Ile Pro Asn Gly Ala Phe Val Tyr Leu Ser Lys Leu
            140                 145                 150

Lys Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser
            155                 160                 165
```

                                387

```
Tyr Ala Phe Asn Arg Ile Pro Ser Leu Arg Arg Leu Asp Leu Gly
                170                 175                 180

Glu Leu Lys Arg Leu Ser Tyr Ile Ser Glu Gly Ala Phe Glu Gly
                185  .              190                 195

Leu Ser Asn Leu Arg Tyr Leu Asn Leu Ala Met Cys Asn Leu Arg
                200                 205                 210

Glu Ile Pro Asn Leu Thr Pro Leu Ile Lys Leu Asp Glu Leu Asp
                215                 220                 225

Leu Ser Gly Asn His Leu Ser Ala Ile Arg Pro Gly Ser Phe Gln
                230                 235                 240

Gly Leu Met His Leu Gln Lys Leu Trp Met Ile Gln Ser Gln Ile
                245                 250                 255

Gln Val Ile Glu Arg Asn Ala Phe Asp Asn Leu Gln Ser Leu Val
                260                 265                 270

Glu Ile Asn Leu Ala His Asn Asn Leu Thr Leu Leu Pro His Asp
                275                 280                 285

Leu Phe Thr Pro Leu His His Leu Glu Arg Ile His Leu His His
                290                 295                 300

Asn Pro Trp Asn Cys Asn Cys Asp Ile Leu Trp Leu Ser Trp Trp
                305                 310                 315

Ile Lys Asp Met Ala Pro Ser Asn Thr Ala Cys Cys Ala Arg Cys
                320                 325                 330

Asn Thr Pro Pro Asn Leu Lys Gly Arg Tyr Ile Gly Glu Leu Asp
                335                 340                 345

Gln Asn Tyr Phe Thr Cys Tyr Ala Pro Val Ile Val Glu Pro Pro
                350                 355                 360

Ala Asp Leu Asn Val Thr Glu Gly Met Ala Ala Glu Leu Lys Cys
                365                 370                 375

Arg Ala Ser Thr Ser Leu Thr Ser Val Ser Trp Ile Thr Pro Asn
                380                 385                 390

Gly Thr Val Met Thr His Gly Ala Tyr Lys Val Arg Ile Ala Val
                395                 400                 405

Leu Ser Asp Gly Thr Leu Asn Phe Thr Asn Val Thr Val Gln Asp
                410                 415                 420

Thr Gly Met Tyr Thr Cys Met Val Ser Asn Ser Val Gly Asn Thr
                425                 430                 435

Thr Ala Ser Ala Thr Leu Asn Val Thr Ala Ala Thr Thr Thr Pro
                440                 445                 450

Phe Ser Tyr Phe Ser Thr Val Thr Val Glu Thr Met Glu Pro Ser
                455                 460                 465

Gln Asp Glu Ala Arg Thr Thr Asp Asn Asn Val Gly Pro Thr Pro
                470                 475                 480
```

```
Val Val Asp Trp Glu Thr Thr Asn Val Thr Thr Ser Leu Thr Pro
                485             490                 495

Gln Ser Thr Arg Ser Thr Glu Lys Thr Phe Thr Ile Pro Val Thr
                500             505                 510

Asp Ile Asn Ser Gly Ile Pro Gly Ile Asp Glu Val Met Lys Thr
                515             520                 525

Thr Lys Ile Ile Ile Gly Cys Phe Val Ala Ile Thr Leu Met Ala
                530             535                 540

Ala Val Met Leu Val Ile Phe Tyr Lys Met Arg Lys Gln His His
                545             550                 555

Arg Gln Asn His His Ala Pro Thr Arg Thr Val Glu Ile Ile Asn
                560             565                 570

Val Asp Asp Glu Ile Thr Gly Asp Thr Pro Met Glu Ser His Leu
                575             580                 585

Pro Met Pro Ala Ile Glu His Glu His Leu Asn His Tyr Asn Ser
                590             595                 600

Tyr Lys Ser Pro Phe Asn His Thr Thr Thr Val Asn Thr Ile Asn
                605             610                 615

Ser Ile His Ser Ser Val His Glu Pro Leu Leu Ile Arg Met Asn
                620             625                 630

Ser Lys Asp Asn Val Gln Glu Thr Gln Ile
                635             640
```

<210> 502
<211> 2458
<212> DNA
<213> Homo Sapien

<400> 502

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gcgccgggag cccatctgcc cccaggggca cggggcgcgg ggccggctcc 50

cgcccggcac atggctgcag ccacctcgcg cgcaccccga ggcgccgcgc 100

ccagctcgcc cgaggtccgt cggaggcgcc cggccgcccc ggagccaagc 150

agcaactgag cggggaagcg cccgcgtccg gggatcggga tgtccctcct 200

ccttctcctc ttgctagttt cctactatgt tggaaccttg gggactcaca 250

ctgagatcaa gagagtggca gaggaaaagg tcactttgcc ctgccaccat 300

caactggggc ttccagaaaa agacactctg gatattgaat ggctgctcac 350

cgataatgaa gggaaccaaa aagtggtgat cacttactcc agtcgtcatg 400

tctacaataa cttgactgag aacagaagg gccgagtggc ctttgcttcc 450

aatttcctgg caggagatgc ctccttgcag attgaacctc tgaagcccag 500

tgatgagggc cggtacacct gtaaggttaa gaattcaggg cgctacgtgt 550

ggagccatgt catcttaaaa gtcttagtga gaccatccaa gcccaagtgt 600
```

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gagttggaag gagagctgac agaaggaagt gacctgactt tgcagtgtga 650

gtcatcctct ggcacagagc ccattgtgta ttactggcag cgaatccgag 700

agaaagaggg agaggatgaa cgtctgcctc ccaaatctag gattgactac 750

aaccaccctg gacgagttct gctgcagaat cttaccatgt cctactctgg 800

actgtaccag tgcacagcag gcaacgaagc tgggaaggaa agctgtgtgg 850

tgcgagtaac tgtacagtat gtacaaagca tcggcatggt tgcaggagca 900

gtgacaggca tagtggctgg agccctgctg attttcctct tggtgtggct 950

gctaatccga aggaaagaca aagaaagata tgaggaagaa gagagaccta 1000

atgaaattcg agaagatgct gaagctccaa aagcccgtct tgtgaaaccc 1050

agctcctctt cctcaggctc tcggagctca cgctctggtt cttcctccac 1100

tcgctccaca gcaaatagtg cctcacgcag ccagcggaca ctgtcaactg 1150

acgcagcacc ccagccaggg ctggccaccc aggcatacag cctagtgggg 1200

ccagaggtga gaggttctga accaaagaaa gtccaccatg ctaatctgac 1250

caaagcagaa accacaccca gcatgatccc cagccagagc agagccttcc 1300

aaacggtctg aattacaatg gacttgactc ccacgctttc ctaggagtca 1350

gggtctttgg actcttctcg tcattggagc tcaagtcacc agccacacaa 1400

ccagatgaga ggtcatctaa gtagcagtga gcattgcacg gaacagattc 1450

agatgagcat tttccttata ca ataccaaa caagcaaaag gatgtaagct 1500

gattcatctg taaaaaggca tcttattgtg cctttagacc agagtaaggg 1550

aaagcaggag tccaaatcta tttgttgacc aggacctgtg gtgagaaggt 1600

tggggaaagg tgaggtgaat atacctaaaa cttttaatgt gggatatttt 1650

gtatcagtgc tttgattcac aattttcaag aggaaatggg atgctgtttg 1700

taaattttct atgcatttct gcaaacttat tggattatta gttattcaga 1750

cagtcaagca gaacccacag ccttattaca cctgtctaca ccatgtactg 1800

agctaaccac ttctaagaaa ctccaaaaaa ggaaacatgt gtcttctatt 1850

ctgacttaac ttcatttgtc ataaggtttg gatattaatt tcaaggggag 1900

ttgaaatagt gggagatgga gaagagtgaa tgagtttctc ccactctata 1950

ctaatctcac tatttgtatt gagcccaaaa taactatgaa aggagacaaa 2000

aatttgtgac aaaggattgt gaagagcttt ccatcttcat gatgttatga 2050

ggattgttga caaacattag aaatatataa tggagcaatt gtggatttcc 2100

cctcaaatca gatgcctcta aggactttcc tgctagatat ttctggaagg 2150

agaaaataca acatgtcatt tatcaacgtc cttagaaaga attcttctag 2200
```

390

```
agaaaaaggg atctaggaat gctgaaagat tacccaacat accattatag 2250

tctcttcttt ctgagaaaat gtgaaaccag aattgcaaga ctgggtggac 2300

tagaaaggga gattagatca gttttctctt aatatgtcaa ggaaggtagc 2350

cgggcatggt gccaggcacc tgtaggaaaa tccagcaggt ggaggttgca 2400

gtgagccgag attatgccat tgcactccag cctgggtgac agagcgggac 2450

tccgtctc 2458
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<210> 503
<211> 373
<212> PRT
<213> Homo Sapien

```
<400> 503
Met Ser Leu Leu Leu Leu Leu Leu Leu Val Ser Tyr Tyr Val Gly
 1               5                  10                  15

Thr Leu Gly Thr His Thr Glu Ile Lys Arg Val Ala Glu Glu Lys
                20                  25                  30

Val Thr Leu Pro Cys His His Gln Leu Gly Leu Pro Glu Lys Asp
                35                  40                  45

Thr Leu Asp Ile Glu Trp Leu Leu Thr Asp Asn Glu Gly Asn Gln
                50                  55                  60

Lys Val Val Ile Thr Tyr Ser Ser Arg His Val Tyr Asn Asn Leu
                65                  70                  75

Thr Glu Glu Gln Lys Gly Arg Val Ala Phe Ala Ser Asn Phe Leu
                80                  85                  90

Ala Gly Asp Ala Ser Leu Gln Ile Glu Pro Leu Lys Pro Ser Asp
                95                  100                 105

Glu Gly Arg Tyr Thr Cys Lys Val Lys Asn Ser Gly Arg Tyr Val
                110                 115                 120

Trp Ser His Val Ile Leu Lys Val Leu Val Arg Pro Ser Lys Pro
                125                 130                 135

Lys Cys Glu Leu Glu Gly Glu Leu Thr Glu Gly Ser Asp Leu Thr
                140                 145                 150

Leu Gln Cys Glu Ser Ser Ser Gly Thr Glu Pro Ile Val Tyr Tyr
                155                 160                 165

Trp Gln Arg Ile Arg Glu Lys Glu Gly Glu Asp Glu Arg Leu Pro
                170                 175                 180

Pro Lys Ser Arg Ile Asp Tyr Asn His Pro Gly Arg Val Leu Leu
                185                 190                 195

Gln Asn Leu Thr Met Ser Tyr Ser Gly Leu Tyr Gln Cys Thr Ala
                200                 205                 210

Gly Asn Glu Ala Gly Lys Glu Ser Cys Val Val Arg Val Thr Val
                215                 220                 225
```

```
Gln Tyr Val Gln Ser Ile Gly Met Val Ala Gly Ala Val Thr Gly
                230                 235                 240

Ile Val Ala Gly Ala Leu Leu Ile Phe Leu Leu Val Trp Leu Leu
                245                 250                 255

Ile Arg Arg Lys Asp Lys Glu Arg Tyr Glu Glu Glu Glu Arg Pro
                260                 265                 270

Asn Glu Ile Arg Glu Asp Ala Glu Ala Pro Lys Ala Arg Leu Val
                275                 280                 285

Lys Pro Ser Ser Ser Ser Ser Gly Ser Arg Ser Ser Arg Ser Gly
                290                 295                 300

Ser Ser Ser Thr Arg Ser Thr Ala Asn Ser Ala Ser Arg Ser Gln
                305                 310                 315

Arg Thr Leu Ser Thr Asp Ala Ala Pro Gln Pro Gly Leu Ala Thr
                320                 325                 330

Gln Ala Tyr Ser Leu Val Gly Pro Glu Val Arg Gly Ser Glu Pro
                335                 340                 345

Lys Lys Val His His Ala Asn Leu Thr Lys Ala Glu Thr Thr Pro
                350                 355                 360

Ser Met Ile Pro Ser Gln Ser Arg Ala Phe Gln Thr Val
                365                 370


<210> 504
<211> 3060
<212> DNA
<213> Homo Sapien

<400> 504
 cgcgaggcgc ggggagcctg ggaccaggag cgagagccgc ctacctgcag 50

 ccgccgccca cggcacggca gccaccatgg cgctcctgct gtgcttcgtg 100

 ctcctgtgcg gagtagtgga tttcgccaga agtttgagta tcactactcc 150

 tgaagagatg attgaaaaag ccaaagggga aactgcctat ctgccatgca 200

 aatttacgct tagtcccgaa gaccagggac cgctggacat cgagtggctg 250

 atatcaccag ctgataatca gaaggtggat caagtgatta tttatattc 300

 tggagacaaa atttatgatg actactatcc agatctgaaa ggccgagtac 350

 attttacgag taatgatctc aaatctggtg atgcatcaat aaatgtaacg 400

 aatttacaac tgtcagatat tggcacatat cagtgcaaag tgaaaaaagc 450

 tcctggtgtt gcaaataaga agattcatct ggtagttctt gttaagcctt 500

 caggtgcgag atgttacgtt gatggatctg aagaaattgg aagtgacttt 550

 aagataaaat gtgaaccaaa agaaggttca cttccattac agtatgagtg 600

 gcaaaaattg tctgactcac agaaaatgcc cacttcatgg ttagcagaaa 650

 tgacttcatc tgttatatct gtaaaaaatg cctcttctga gtactctggg 700
```

392

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acatacagct gtacagtcag aaacagagtg ggctctgatc agtgcctgtt 750

gcgtctaaac gttgtccctc cttcaaataa agctggacta attgcaggag 800

ccattatagg aactttgctt gctctagcgc tcattggtct tatcatcttt 850

tgctgtcgta aaaagcgcag agaagaaaaa tatgaaaagg aagttcatca 900

cgatatcagg gaagatgtgc cacctccaaa gagccgtacg tccactgcca 950

gaagctacat cggcagtaat cattcatccc tggggtccat gtctccttcc 1000

aacatggaag gatattccaa gactcagtat aaccaagtac caagtgaaga 1050

ctttgaacgc actcctcaga gtccgactct cccacctgct aagttcaagt 1100

acccttacaa gactgatgga attacagttg tataaatatg gactactgaa 1150

gaatctgaag tattgtatta tttgacttta ttttaggcct ctagtaaaga 1200

cttaaatgtt ttttaaaaaa agcacaaggc acagagatta gagcagctgt 1250

aagaacacat ctactttatg caatggcatt agacatgtaa gtcagatgtc 1300

atgtcaaaat tagtacgagc caaattcttt gttaaaaaac cctatgtata 1350

gtgacactga tagttaaaag atgttttatt atattttcaa taactaccac 1400

taacaaattt ttaacttttc atatgcatat tctgatatgt ggtcttttag 1450

gaaaagtatg gttaatagtt gatttttcaa aggaaatttt aaaattctta 1500

cgttctgttt aatgtttttg ctatttagtt aaatacattg aagggaaata 1550

cccgttcttt tcccctttta tgcacacaac agaaacacgc gttgtcatgc 1600

ctcaaactat tttttatttg caactacatg atttcacaca attctcttaa 1650

acaacgacat aaaatagatt tccttgtata taaataactt acatacgctc 1700

cataaagtaa attctcaaag gtgctagaac aaatcgtcca cttctacagt 1750

gttctcgtat ccaacagagt tgatgcacaa tatataaata ctcaagtcca 1800

atattaaaaa cttaggcact tgactaactt taataaaatt tctcaaacta 1850

tatcaatatc taaagtgcat atatttttta agaaagatta ttctcaataa 1900

cttctataaa aataagtttg atggtttggc ccatctaact tcactactat 1950

tagtaagaac ttttaacttt taatgtgtag taaggtttat tctacctttt 2000

tctcaacatg acaccaacac aatcaaaaac gaagttagtg aggtgctaac 2050

atgtgaggat taatccagtg attccggtca caatgcattc caggaggagg 2100

tacccatgtc actggaattg ggcgatatgg tttatttttt cttccctgat 2150

ttggataacc aaatggaaca ggaggaggat agtgattctg atggccattc 2200

cctcgataca ttcctggctt ttttctgggc aaagggtgcc acattggaag 2250

aggtggaaat ataagttctg aaatctgtag ggaagagaac acattaagtt 2300
```

393

aattcaaagg aaaaaatcat catctatgtt ccagatttct cattaaagac 2350

aaagttaccc acaacactga gatcacatct aagtgacact cctattgtca 2400

ggtctaaata cattaaaaac ctcatgtgta ataggcgtat aatgtataac 2450

aggtgaccaa tgttttctga atgcataaag aaatgaataa actcaaacac 2500

agtacttcct aaacaacttc aaccaaaaaa gaccaaaaca tggaacgaat 2550

ggaagcttgt aaggacatgc ttgttttagt ccagtggttt ccacagctgg 2600

ctaagccagg agtcacttgg aggcttttaa atacaaaaca ttggagctgg 2650

aggccattat ccttagcaaa ctaatgcaga aacagaaaat caactaccgc 2700

atgttctcac ttataagtgg gaggtaatga taagaactta tgaacacaaa 2750

gaaggaaaca atagacattg gagtctattt gagaggggag ggtgggagaa 2800

ggaaaaggag cagaaaagat aactattgag tactgccttc acacctgggt 2850

gatgaaataa tatgtacaac aaatccctgt gacacatgtt tacctatgga 2900

acaaaccttc atgtgtatcc ctaaacctaa aataaaagtt aaaaaaaaaa 2950

aaaraaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3000

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3050

aaaaaaaaaa 3060

<210> 505
<211> 352
<212> PRT
<213> Homo Sapien

<400> 505
Met Ala Leu Leu Leu Cys Phe Val Leu Leu Cys Gly Val Val Asp
 1   5   10   15

Phe Ala Arg Ser Leu Ser Ile Thr Thr Pro Glu Glu Met Ile Glu
                20   25   30

Lys Ala Lys Gly Glu Thr Ala Tyr Leu Pro Cys Lys Phe Thr Leu
                35   40   45

Ser Pro Glu Asp Gln Gly Pro Leu Asp Ile Glu Trp Leu Ile Ser
                50   55   60

Pro Ala Asp Asn Gln Lys Val Asp Gln Val Ile Ile Leu Tyr Ser
                65   70   75

Gly Asp Lys Ile Tyr Asp Asp Tyr Tyr Pro Asp Leu Lys Gly Arg
                80   85   90

Val His Phe Thr Ser Asn Asp Leu Lys Ser Gly Asp Ala Ser Ile
                95   100   105

Asn Val Thr Asn Leu Gln Leu Ser Asp Ile Gly Thr Tyr Gln Cys
                110   115   120

Lys Val Lys Lys Ala Pro Gly Val Ala Asn Lys Lys Ile His Leu

394

```
              125                 130                  135
  Val Val Leu Val Lys Pro Ser Gly Ala Arg Cys Tyr Val Asp Gly
                  140                 145                  150
  Ser Glu Glu Ile Gly Ser Asp Phe Lys Ile Lys Cys Glu Pro Lys
                  155                 160                  165
  Glu Gly Ser Leu Pro Leu Gln Tyr Glu Trp Gln Lys Leu Ser Asp
                  170                 175                  180
  Ser Gln Lys Met Pro Thr Ser Trp Leu Ala Glu Met Thr Ser Ser
                  185                 190                  195
  Val Ile Ser Val Lys Asn Ala Ser Ser Glu Tyr Ser Gly Thr Tyr
                  200                 205                  210
  Ser Cys Thr Val Arg Asn Arg Val Gly Ser Asp Gln Cys Leu Leu
                  215                 220                  225
  Arg Leu Asn Val Val Pro Pro Ser Asn Lys Ala Gly Leu Ile Ala
                  230                 235                  240
  Gly Ala Ile Ile Gly Thr Leu Leu Ala Leu Ala Leu Ile Gly Leu
                  245                 250                  255
  Ile Ile Phe Cys Cys Arg Lys Lys Arg Arg Glu Glu Lys Tyr Glu
                  260                 265                  270
  Lys Glu Val His His Asp Ile Arg Glu Asp Val Pro Pro Pro Lys
                  275                 280                  285
  Ser Arg Thr Ser Thr Ala Arg Ser Tyr Ile Gly Ser Asn His Ser
                  290                 295                  300
  Ser Leu Gly Ser Met Ser Pro Ser Asn Met Glu Gly Tyr Ser Lys
                  305                 310                  315
  Thr Gln Tyr Asn Gln Val Pro Ser Glu Asp Phe Glu Arg Thr Pro
                  320                 325                  330
  Gln Ser Pro Thr Leu Pro Pro Ala Lys Phe Lys Tyr Pro Tyr Lys
                  335                 340                  345
  Thr Asp Gly Ile Thr Val Val
                  350
```

<210> 506
<211> 1705
<212> DNA
<213> Homo Sapien

<400> 506
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 tgaaatgact tccacggctg ggacgggaac cttccaccca cagctatgcc 50

 tctgattggt gaatggtgaa ggtgcctgtc taacttttct gtaaaaagaa 100

 ccagctgcct ccaggcagcc agccctcaag catcacttac aggaccagag 150

 ggacaagaca tgactgtgat gaggagctgc tttcgccaat ttaacaccaa 200

 gaagaattga ggctgcttgg gaggaaggcc aggaggaaca cgagactgag 250
```

agatgaattt tcaacagagg ctgcaaagcc tgtggacttt agccagaccc 300

ttctgccctc ctttgctggc gacagcctct caaatgcaga tggttgtgct 350

cccttgcctg ggttttaccc tgcttctctg gagccaggta tcaggggccc 400

agggccaaga attccacttt gggccctgcc aagtgaaggg ggttgttccc 450

cagaaactgt gggaagcctt ctgggctgtg aaagacacta tgcaagctca 500

ggataacatc acgagtgccc ggctgctgca gcaggaggtt ctgcagaacg 550

tctcggatgc tgagagctgt taccttgtcc acaccctgct ggagttctac 600

ttgaaaactg ttttcaaaaa ccaccacaat agaacagttg aagtcaggac 650

tctgaagtca ttctctactc tggccaacaa ctttgttctc atcgtgtcac 700

aactgcaacc cagtcaagaa aatgagatgt tttccatcag agacagtgca 750

cacaggcggt ttctgctatt ccggagagca ttcaaacagt tggacgtaga 800

agcagctctg accaaagccc ttggggaagt ggacattctt ctgacctgga 850

tgcagaaatt ctacaagctc tgaatgtcta gaccaggacc tccctccccc 900

tggcactggt ttgttccctg tgtcatttca aacagtctcc cttcctatgc 950

tgttcactgg acacttcacg cccttggcca tgggtcccat tcttggccca 1000

ggattattgt caaagaagtc attctttaag cagcgccagt gacagtcagg 1050

gaaggtgcct ctggatgctg tgaagagtct acagagaaga ttcttgtatt 1100

tattacaact ctatttaatt aatgtcagta tttcaactga agttctattt 1150

atttgtgaga ctgtaagtta catgaaggca gcagaatatt gtgccccatg 1200

cttctttacc cctcacaatc cttgccacag tgtggggcag tggatgggtg 1250

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atgaaaatca cactgtcttc tgatatctgc agggacagag cattggggtg 1400

ggggtaaggt gcatctgttt gaaaagtaaa cgataaaatg tggattaaag 1450

tgcccagcac aaagcagatc ctcaataaac atttcatttc ccacccacac 1500

tcgccagctc accccatcat ccctttccct tggtgccctc ctttttttttt 1550

tatcctagtc attcttccct aatcttccac ttgagtgtca agctgacctt 1600

gctgatggtg acattgcacc tggatgtact atccaatctg tgatgacatt 1650

ccctgctaat aaaagacaac ataactccaa aaaaaaaaaa aaaaaaaaaa 1700

aaaaa 1705

<210> 507
<211> 206
<212> PRT

396

<213> Homo Sapien

<400> 507
Met Asn Phe Gln Gln Arg Leu Gln Ser Leu Trp Thr Leu Ala Arg
 1   5   10   15

Pro Phe Cys Pro Pro Leu Leu Ala Thr Ala Ser Gln Met Gln Met
                20   25   30

Val Val Leu Pro Cys Leu Gly Phe Thr Leu Leu Leu Trp Ser Gln
                35   40   45

Val Ser Gly Ala Gln Gly Gln Glu Phe His Phe Gly Pro Cys Gln
                50   55   60

Val Lys Gly Val Val Pro Gln Lys Leu Trp Glu Ala Phe Trp Ala
                65   70   75

Val Lys Asp Thr Met Gln Ala Gln Asp Asn Ile Thr Ser Ala Arg
                80   85   90

Leu Leu Gln Gln Glu Val Leu Gln Asn Val Ser Asp Ala Glu Ser
                95   100   105

Cys Tyr Leu Val His Thr Leu Leu Glu Phe Tyr Leu Lys Thr Val
                110   115   120

Phe Lys Asn His His Asn Arg Thr Val Glu Val Arg Thr Leu Lys
                125   130   135

Ser Phe Ser Thr Leu Ala Asn Asn Phe Val Leu Ile Val Ser Gln
                140   145   150

Leu Gln Pro Ser Gln Glu Asn Glu Met Phe Ser Ile Arg Asp Ser
                155   160   165

Ala His Arg Arg Phe Leu Leu Phe Arg Arg Ala Phe Lys Gln Leu
                170   175   180

Asp Val Glu Ala Ala Leu Thr Lys Ala Leu Gly Glu Val Asp Ile
                185   190   195

Leu Leu Thr Trp Met Gln Lys Phe Tyr Lys Leu
                200   205

<210> 508
<211> 924
<212> DNA
<213> Homo Sapien

<400> 508
 aaggagcagc ccgcaagcac caagtgagag gcatgaagtt acagtgtgtt 50

 tccctttggc tcctgggtac aatactgata ttgtgctcag tagacaacca 100

 cggtctcagg agatgtctga tttccacaga catgcaccat atagaagaga 150

 gtttccaaga aatcaaaaga gccatccaag ctaaggacac cttcccaaat 200

 gtcactatcc tgtccacatt ggagactctg cagatcatta gcccttaga 250

 tgtgtgctgc gtgaccaaga acctcctggc gttctacgtg gacagggtgt 300

tcaaggatca tcaggagcca aaccccaaaa tcttgagaaa aatcagcagc 350

attgccaact ctttcctcta catgcagaaa actctgcggc aatgtcagga 400

acagaggcag tgtcactgca ggcaggaagc caccaatgcc accagagtca 450

tccatgacaa ctatgatcag ctggaggtcc acgctgctgc cattaaatcc 500

ctgggagagc tcgacgtctt tctagcctgg attaataaga atcatgaagt 550

aatgttctca gcttgatgac aaggaacctg tatagtgatc cagggatgaa 600

cacccctgt gcggtttact gtgggagaca gcccaccttg aaggggaagg 650

agatgggaa ggccccttgc agctgaaagt cccactggct ggcctcaggc 700

tgtcttattc cgcttgaaaa taggcaaaaa gtctactgtg gtatttgtaa 750

taaactctat ctgctgaaag ggcctgcagg ccatcctggg agtaaagggc 800

tgccttccca tctaatttat tgtaaagtca tatagtccat gtctgtgatg 850

tgagccaagt gatatcctgt agtacacatt gtactgagtg gtttttctga 900

ataaattcca tattttacct atga 924

<210> 509
<211> 177
<212> PRT
<213> Homo Sapien

<400> 509
Met Lys Leu Gln Cys Val Ser Leu Trp Leu Leu Gly Thr Ile Leu
1   5   10   15

Ile Leu Cys Ser Val Asp Asn His Gly Leu Arg Arg Cys Leu Ile
                20   25   30

Ser Thr Asp Met His His Ile Glu Glu Ser Phe Gln Glu Ile Lys
                35   40   45

Arg Ala Ile Gln Ala Lys Asp Thr Phe Pro Asn Val Thr Ile Leu
                50   55   60

Ser Thr Leu Glu Thr Leu Gln Ile Ile Lys Pro Leu Asp Val Cys
                65   70   75

Cys Val Thr Lys Asn Leu Leu Ala Phe Tyr Val Asp Arg Val Phe
                80   85   90

Lys Asp His Gln Glu Pro Asn Pro Lys Ile Leu Arg Lys Ile Ser
                95   100   105

Ser Ile Ala Asn Ser Phe Leu Tyr Met Gln Lys Thr Leu Arg Gln
                110   115   120

Cys Gln Glu Gln Arg Gln Cys His Cys Arg Gln Glu Ala Thr Asn
                125   130   135

Ala Thr Arg Val Ile His Asp Asn Tyr Asp Gln Leu Glu Val His
                140   145   150

Ala Ala Ala Ile Lys Ser Leu Gly Glu Leu Asp Val Phe Leu Ala

```
Trp Ile Asn Lys Asn His Glu Val Met Phe Ser Ala
              170              175
```

<210> 510
<211> 996
<212> DNA
<213> Homo Sapien

<400> 510

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cccgtgccaa gagtgacgta agtaccgcct atagagtcta taggcccact 50

tggcttcgtt agaacgcggc tacaattaat acataacctt atgtatcata 100

cacatacgat ttaggtgaca ctatagaata acatccactt tgcctttctc 150

tccacaggtg tccactccca ggtccaactg cacctcggtt ctatcgataa 200

tctcagcacc agccactcag agcagggcac gatgttgggg gcccgcctca 250

ggctctgggt ctgtgccttg tgcagcgtct gcagcatgag cgtcctcaga 300

gcctatccca atgcctcccc actgctcggc tccagctggg gtggcctgat 350

ccacctgtac acagccacag ccaggaacag ctaccacctg cagatccaca 400

agaatggcca tgtggatggc gcaccccatc agaccatcta cagtgccctg 450

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cagaagatac ctctgcatgg atttcagagg caacattttt ggatcacact 550

atttcgaccc ggagaactgc aggttccaac accagacgct ggaaaacggg 600

tacgacgtct accactctcc tcagtatcac ttcctggtca gtctgggccg 650

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tcctgtcccg gaggaacgag atccccctaa ttcacttcaa caccccata 750

ccacggcggc acaccccggag cgccgaggac gactcggagc gggacccccct 800

gaacgtgctg aagcccgggg cccggatgac cccggccccg gcctcctgtt 850

cacaggagct cccgagcgcc gaggacaaca gcccgatggc cagtgaccca 900

ttaggggtgg tcagggcgg tcgagtgaac acgcacgctg ggggaacggg 950

cccggaaggc tgccgcccct tcgccaagtt catctagggt cgctgg 996
```

<210> 511
<211> 251
<212> PRT
<213> Homo Sapien

<400> 511

```
Met Leu Gly Ala Arg Leu Arg Leu Trp Val Cys Ala Leu Cys Ser
  1               5                  10                  15

Val Cys Ser Met Ser Val Leu Arg Ala Tyr Pro Asn Ala Ser Pro
              20                  25                  30
```

```
Leu Leu Gly Ser Ser Trp Gly Gly Leu Ile His Leu Tyr Thr Ala
              35                      40                      45

Thr Ala Arg Asn Ser Tyr His Leu Gln Ile His Lys Asn Gly His
              50                      55                      60

Val Asp Gly Ala Pro His Gln Thr Ile Tyr Ser Ala Leu Met Ile
              65                      70                      75

Arg Ser Glu Asp Ala Gly Phe Val Val Ile Thr Gly Val Met Ser
              80                      85                      90

Arg Arg Tyr Leu Cys Met Asp Phe Arg Gly Asn Ile Phe Gly Ser
              95                     100                     105

His Tyr Phe Asp Pro Glu Asn Cys Arg Phe Gln His Gln Thr Leu
             110                     115                     120

Glu Asn Gly Tyr Asp Val Tyr His Ser Pro Gln Tyr His Phe Leu
             125                     130                     135

Val Ser Leu Gly Arg Ala Lys Arg Ala Phe Leu Pro Gly Met Asn
             140                     145                     150

Pro Pro Pro Tyr Ser Gln Phe Leu Ser Arg Arg Asn Glu Ile Pro
             155                     160                     165

Leu Ile His Phe Asn Thr Pro Ile Pro Arg Arg His Thr Arg Ser
             170                     175                     180

Ala Glu Asp Asp Ser Glu Arg Asp Pro Leu Asn Val Leu Lys Pro
             185                     190                     195

Arg Ala Arg Met Thr Pro Ala Pro Ala Ser Cys Ser Gln Glu Leu
             200                     205                     210

Pro Ser Ala Glu Asp Asn Ser Pro Met Ala Ser Asp Pro Leu Gly
             215                     220                     225

Val Val Arg Gly Gly Arg Val Asn Thr His Ala Gly Gly Thr Gly
             230                     235                     240

Pro Glu Gly Cys Arg Pro Phe Ala Lys Phe Ile
             245                     250
```

<210> 512
<211> 2015
<212> DNA
<213> Homo Sapien

<400> 512
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ggaaaaggta cccgcgagag acagccagca gttctgtgga gcagcggtgg 50

ccggctagga tgggctgtct ctggggtctg gctctgcccc ttttcttctt 100

ctgctgggag gttggggtct ctgggagctc tgcaggcccc agcacccgca 150

gagcagacac tgcgatgaca acggacgaca cagaagtgcc cgctatgact 200

ctagcaccgg gccacgccgc tctggaaact caaacgctga gcgctgagac 250

ctcttctagg gcctcaaccc cagccggccc cattccagaa gcagagacca 300
```

```
ggggagccaa gagaatttcc cctgcaagag agaccaggag tttcacaaaa 350

acatctccca acttcatggt gctgatcgcc acctccgtgg agacatcagc 400

cgccagtggc agccccgagg gagctggaat gaccacagtt cagaccatca 450

caggcagtga tcccgaggaa gccatctttg acacccttttg caccgatgac 500

agctctgaag aggcaaagac actcacaatg gacatattga cattggctca 550

cacctccaca gaagctaagg gcctgtcctc agagagcagt gcctcttccg 600

acggccccca tccagtcatc accccgtcac gggcctcaga gagcagcgcc 650

tcttccgacg gcccccatcc agtcatcacc ccgtcacggg cctcagagag 700

cagcgcctct tccgacggcc cccatccagt catcaccccg tcatggtccc 750

cgggatctga tgtcactctc ctcgctgaag ccctggtgac tgtcacaaac 800

atcgaggtta ttaattgcag catcacagaa atagaaacaa caacttccag 850

catccctggg gcctcagaca tagatctcat ccccacggaa ggggtgaagg 900

cctcgtccac ctccgatcca ccagctctgc ctgactccac tgaagcaaaa 950

ccacacatca ctgaggtcac agcctctgcc gagaccctgt ccacagccgg 1000

caccacagag tcagctgcac ctcatgccac ggttgggacc ccactcccca 1050

ctaacagcgc cacagaaaga gaagtgacag cacccggggc cacgaccctc 1100

agtggagctc tggtcacagt tagcaggaat cccctggaag aaacctcagc 1150

cctctctgtt gagacaccaa gttacgtcaa agtctcagga gcagctccgg 1200

tctccataga ggctgggtca gcagtgggca aaacaacttc ctttgctggg 1250

agctctgctt cctcctacag cccctcggaa gccgccctca agaacttcac 1300

cccttcagag acaccgacca tggacatcgc aaccaagggg cccttcccca 1350

ccagcaggga ccctcttcct tctgtccctc cgactacaac caacagcagc 1400

cgagggacga acagcacctt agccaagatc acaacctcag cgaagaccac 1450

gatgaagccc aacagccac gcccacgact gcccggacga ggccgaccac 1500

agacgtgagt gcaggtgaaa atggaggttt cctcctcctg cggctgagtg 1550

tggcttcccc ggaagacctc actgacccca gagtggcaga aaggctgatg 1600

cagcagctcc accgggaact ccacgcccac gcgcctcact tccaggtctc 1650

cttactgcgt gtcaggagag gctaacggac atcagctgca gccaggcatg 1700

tcccgtatgc caaaagaggg tgctgcccct agcctgggcc cccaccgaca 1750

gactgcagct gcgttactgt gctgagaggt acccagaagg ttcccatgaa 1800

gggcagcatg tccaagcccc taaccccaga tgtggcaaca ggaccctcgc 1850

tcacatccac cggagtgtat gtatggggag gggcttcacc tgttcccaga 1900
```

401

ggtgtccttg gactcacctt ggcacatgtt ctgtgtttca gtaaagagag 1950

acctgatcac ccatctgtgt gcttccatcc tgcattaaaa ttcactcagt 2000

gtggcccaaa aaaaa 2015

<210> 513
<211> 482
<212> PRT
<213> Homo Sapien

<400> 513

```
Met Gly Cys Leu Trp Gly Leu Ala Leu Pro Leu Phe Phe Phe Cys
 1               5                  10                  15

Trp Glu Val Gly Val Ser Gly Ser Ser Ala Gly Pro Ser Thr Arg
                20                  25                  30

Arg Ala Asp Thr Ala Met Thr Thr Asp Asp Thr Glu Val Pro Ala
                35                  40                  45

Met Thr Leu Ala Pro Gly His Ala Ala Leu Glu Thr Gln Thr Leu
                50                  55                  60

Ser Ala Glu Thr Ser Ser Arg Ala Ser Thr Pro Ala Gly Pro Ile
                65                  70                  75

Pro Glu Ala Glu Thr Arg Gly Ala Lys Arg Ile Ser Pro Ala Arg
                80                  85                  90

Glu Thr Arg Ser Phe Thr Lys Thr Ser Pro Asn Phe Met Val Leu
                95                  100                 105

Ile Ala Thr Ser Val Glu Thr Ser Ala Ala Ser Gly Ser Pro Glu
                110                 115                 120

Gly Ala Gly Met Thr Thr Val Gln Thr Ile Thr Gly Ser Asp Pro
                125                 130                 135

Glu Glu Ala Ile Phe Asp Thr Leu Cys Thr Asp Asp Ser Ser Glu
                140                 145                 150

Glu Ala Lys Thr Leu Thr Met Asp Ile Leu Thr Leu Ala His Thr
                155                 160                 165

Ser Thr Glu Ala Lys Gly Leu Ser Ser Glu Ser Ser Ala Ser Ser
                170                 175                 180

Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg Ala Ser Glu Ser
                185                 190                 195

Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg
                200                 205                 210

Ala Ser Glu Ser Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile
                215                 220                 225

Thr Pro Ser Trp Ser Pro Gly Ser Asp Val Thr Leu Leu Ala Glu
                230                 235                 240

Ala Leu Val Thr Val Thr Asn Ile Glu Val Ile Asn Cys Ser Ile
                245                 250                 255
```

402

```
Thr Glu Ile Glu Thr Thr Thr Ser Ser Ile Pro Gly Ala Ser Asp
            260                 265                 270

Ile Asp Leu Ile Pro Thr Glu Gly Val Lys Ala Ser Ser Thr Ser
            275                 280                 285

Asp Pro Pro Ala Leu Pro Asp Ser Thr Glu Ala Lys Pro His Ile
            290                 295                 300

Thr Glu Val Thr Ala Ser Ala Glu Thr Leu Ser Thr Ala Gly Thr
            305                 310                 315

Thr Glu Ser Ala Ala Pro His Ala Thr Val Gly Thr Pro Leu Pro
            320                 325                 330

Thr Asn Ser Ala Thr Glu Arg Glu Val Thr Ala Pro Gly Ala Thr
            335                 340                 345

Thr Leu Ser Gly Ala Leu Val Thr Val Ser Arg Asn Pro Leu Glu
            350                 355                 360

Glu Thr Ser Ala Leu Ser Val Glu Thr Pro Ser Tyr Val Lys Val
            365                 370                 375

Ser Gly Ala Ala Pro Val Ser Ile Glu Ala Gly Ser Ala Val Gly
            380                 385                 390

Lys Thr Thr Ser Phe Ala Gly Ser Ser Ala Ser Ser Tyr Ser Pro
            395                 400                 405

Ser Glu Ala Ala Leu Lys Asn Phe Thr Pro Ser Glu Thr Pro Thr
            410                 415                 420

Met Asp Ile Ala Thr Lys Gly Pro Phe Pro Thr Ser Arg Asp Pro
            425                 430                 435

Leu Pro Ser Val Pro Pro Thr Thr Thr Asn Ser Ser Arg Gly Thr
            440                 445                 450

Asn Ser Thr Leu Ala Lys Ile Thr Thr Ser Ala Lys Thr Thr Met
            455                 460                 465

Lys Pro Gln Gln Pro Arg Pro Arg Leu Pro Gly Arg Gly Arg Pro
            470                 475                 480

Gln Thr
```

<210> 514
<211> 2284
<212> DNA
<213> Homo Sapien

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<400> 514
 gcggagcatc cgctgcggtc ctcgccgaga cccccgcgcg gattcgccgg 50

 tccttcccgc gggcgcgaca gagctgtcct cgcacctgga tggcagcagg 100

 ggcgccgggg tcctctcgac gccagagaga aatctcatca tctgtgcagc 150

 cttcttaaag caaactaaga ccagagggag gattatcctt gacctttgaa 200

 gaccaaaact aaactgaaat ttaaaatgtt cttcggggga gaagggagct 250
```

403

```
tgacttacac tttggtaata atttgcttcc tgacactaag gctgtctgct 300

agtcagaatt gcctcaaaaa gagtctagaa gatgttgtca ttgacatcca 350

gtcatctctt tctaagggaa tcagaggcaa tgagcccgta tatacttcaa 400

ctcaagaaga ctgcattaat tcttgctgtt caacaaaaaa catatcaggg 450

gacaaagcat gtaacttgat gatcttcgac actcgaaaaa cagctagaca 500

acccaactgc tacctatttt tctgtcccaa cgaggaagcc tgtccattga 550

aaccagcaaa aggacttatg agttacagga taattacaga ttttccatct 600

ttgaccagaa atttgccaag ccaagagtta ccccaggaag attctctctt 650

acatggccaa ttttcacaag cagtcactcc cctagcccat catcacacag 700

attattcaaa gcccaccgat atctcatgga gagacacact ttctcagaag 750

tttggatcct cagatcacct ggagaaacta tttaagatgg atgaagcaag 800

tgcccagctc cttgcttata aggaaaaagg ccattctcag agttcacaat 850

tttcctctga tcaagaaata gctcatctgc tgcctgaaaa tgtgagtgcg 900

ctcccagcta cggtggcagt tgcttctcca cataccacct cggctactcc 950

aaagcccgcc acccttctac ccaccaatgc ttcagtgaca ccttctggga 1000

cttcccagcc acagctggcc accacagctc cacctgtaac cactgtcact 1050

tctcagcctc ccacgaccct catttctaca gtttttacac gggctgcggc 1100

tacactccaa gcaatggcta caacagcagt tctgactacc acctttcagg 1150

cacctacgga ctcgaaaggc agcttagaaa ccataccgtt tacagaaatc 1200

tccaacttaa ctttgaacac agggaatgtg tataaccta ctgcactttc 1250

tatgtcaaat gtggagtctt ccactatgaa taaaactgct tcctgggaag 1300

gtagggaggc cagtccaggc agttcctccc agggcagtgt tccagaaaat 1350

cagtacggcc ttccatttga aaaatggctt cttatcgggt ccctgctctt 1400

tggtgtcctg ttcctggtga taggcctcgt cctcctgggt agaatccttt 1450

cggaatcact ccgcaggaaa cgttactcaa gactggatta tttgatcaat 1500

gggatctatg tggacatcta aggatggaac tcggtgtctc ttaattcatt 1550

tagtaaccag aagcccaaat gcaatgagtt tctgctgact tgctagtctt 1600

agcaggaggt tgtattttga agacaggaaa atgcccccct ctgctttcct 1650

ttttttttt ggagacagag tcttgctctg ttgcccaggc tggagtgcag 1700

tagcacgatc tcggctctca ccgcaacctc cgtctcctgg gttcaagcga 1750

ttctcctgcc tcagcctcct aagtatctgg gattacaggc atgtgccacc 1800

acacctgggt gatttttgta tttttagtag agacgggggtt tcaccatgtt 1850
```

404

```
        ggtcaggctg gtctcaaact cctgacctag tgatccaccc tcctcggcct 1900

        cccaaagtgc tgggattaca ggcatgagcc accacagctg gccccttct 1950

        gtttttatgtt tggtttttga gaaggaatga agtgggaacc aaattaggta 2000

        attttgggta atctgtctct aaaatattag ctaaaaacaa agctctatgt 2050

        aaagtaataa agtataattg ccatataaat ttcaaaattc aactggcttt 2100

        tatgcaaaga aacaggttag gacatctagg ttccaattca ttcacattct 2150

        tggttccaga taaaatcaac tgtttatatc aatttctaat ggatttgctt 2200

        ttcttttat atggattcct ttaaaactta ttccagatgt agttccttcc 2250

        aattaaatat ttgaataaat cttttgttac tcaa 2284
```

<400> 515

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Met Phe Phe Gly Gly Glu Gly Ser Leu Thr Tyr Thr Leu Val Ile
 1               5                  10                  15

Ile Cys Phe Leu Thr Leu Arg Leu Ser Ala Ser Gln Asn Cys Leu
            20                  25                  30

Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu
            35                  40                  45

Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln
            50                  55                  60

Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly
            65                  70                  75

Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala
            80                  85                  90

Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala
            95                  100                 105

Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile
            110                 115                 120

Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu
            125                 130                 135

Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val
            140                 145                 150

Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp
            155                 160                 165

Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp
            170                 175                 180

His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu
            185                 190                 195
```

```
Leu Ala Tyr Lys Glu Lys Gly His Ser Gln Ser Ser Gln Phe Ser
                200                 205                 210

Ser Asp Gln Glu Ile Ala His Leu Leu Pro Glu Asn Val Ser Ala
                215                 220                 225

Leu Pro Ala Thr Val Ala Val Ala Ser Pro His Thr Thr Ser Ala
                230                 235                 240

Thr Pro Lys Pro Ala Thr Leu Leu Pro Thr Asn Ala Ser Val Thr
                245                 250                 255

Pro Ser Gly Thr Ser Gln Pro Gln Leu Ala Thr Thr Ala Pro Pro
                260                 265                 270

Val Thr Thr Val Thr Ser Gln Pro Pro Thr Thr Leu Ile Ser Thr
                275                 280                 285

Val Phe Thr Arg Ala Ala Ala Thr Leu Gln Ala Met Ala Thr Thr
                290                 295                 300

Ala Val Leu Thr Thr Thr Phe Gln Ala Pro Thr Asp Ser Lys Gly
                305                 310                 315

Ser Leu Glu Thr Ile Pro Phe Thr Glu Ile Ser Asn Leu Thr Leu
                320                 325                 330

Asn Thr Gly Asn Val Tyr Asn Pro Thr Ala Leu Ser Met Ser Asn
                335                 340                 345

Val Glu Ser Ser Thr Met Asn Lys Thr Ala Ser Trp Glu Gly Arg
                350                 355                 360

Glu Ala Ser Pro Gly Ser Ser Ser Gln Gly Ser Val Pro Glu Asn
                365                 370                 375

Gln Tyr Gly Leu Pro Phe Glu Lys Trp Leu Leu Ile Gly Ser Leu
                380                 385                 390

Leu Phe Gly Val Leu Phe Leu Val Ile Gly Leu Val Leu Leu Gly
                395                 400                 405

Arg Ile Leu Ser Glu Ser Leu Arg Arg Lys Arg Tyr Ser Arg Leu
                410                 415                 420

Asp Tyr Leu Ile Asn Gly Ile Tyr Val Asp Ile
                425                 430

<210> 516
<211> 2749
<212> DNA
<213> Homo Sapien

<220>
<221> unsure
<222> 1869, 1887
<223> unknown base

<400> 516
 ctcccacggt gtccagcgcc cagaatgcgg cttctggtcc tgctatgggg 50

 ttgcctgctg ctcccaggtt atgaagccct ggagggccca gaggaaatca 100
```

```
gcgggttcga aggggacact gtgtccctgc agtgcaccta cagggaagag 150

ctgagggacc accggaagta ctggtgcagg aagggtggga tcctcttctc 200

tcgctgctct ggcaccatct atgcagaaga agaaggccag gagacaatga 250

agggcagggt gtccatccgt gacagccgcc aggagctctc gctcattgtg 300

accctgtgga acctcaccct gcaagacgct ggggagtact ggtgtggggt 350

cgaaaaacgg ggccccgatg agtctttact gatctctctg ttcgtctttc 400

caggaccctg ctgtcctccc tccccttctc ccaccttcca gcctctggct 450

acaacacgcc tgcagcccaa ggcaaaagct cagcaaaccc agccccagg 500

attgacttct cctgggctct acccggcagc caccacagcc aagcagggga 550

agacaggggc tgaggcccct ccattgccag ggacttccca gtacgggcac 600

gaaaggactt ctcagtacac aggaacctct cctcacccag cgacctctcc 650

tcctgcaggg agctcccgcc cccccatgca gctggactcc acctcagcag 700

aggacaccag tccagctctc agcagtggca gctctaagcc cagggtgtcc 750

atcccgatgg tccgcatact ggccccagtc ctggtgctgc tgagccttct 800

gtcagccgca ggcctgatcg ccttctgcag ccacctgctc ctgtggagaa 850

aggaagctca acaggccacg gagacacaga ggaacgagaa gttctggctc 900

tcacgcttga ctgcggagga aaaggaagcc ccttcccagg ccctgaggg 950

ggacgtgatc tcgatgcctc ccctccacac atctgaggag gagctgggct 1000

tctcgaagtt tgtctcagcg tagggcagga ggccctcctg gccaggccag 1050

cagtgaagca gtatggctgg ctggatcagc accgattccc gaaagctttc 1100

cacctcagcc tcagagtcca gctgcccgga ctccagggct ctccccaccc 1150

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gtgaaaaacg tgattcctgg ccccaccaag acccaccaaa accatctctg 1600

ggcttggtgc aggactctga attctaacaa tgcccagtga ctgtcgcact 1650

tgagtttgag ggccagtggg cctgatgaac gctcacaccc cttcagctta 1700
```

```
gagtctgcat ttgggctgtg acgtctccac ctgccccaat agatctgctc 1750

tgtctgcgac accagatcca cgtggggact cccctgaggc ctgctaagtc 1800

caggccttgg tcaggtcagg tgcacattgc aggataagcc caggaccggc 1850

acagaagtgg ttgcctttnc catttgccct ccctggncca tgccttcttg 1900

cctttggaaa aaatgatgaa gaaaaccttg gctccttcct tgtctggaaa 1950

gggttacttg cctatgggtt ctggtggcta gagagaaaag tagaaaacca 2000

gagtgcacgt aggtgtctaa cacagaggag agtaggaaca gggcggatac 2050

ctgaaggtga ctccgagtcc agccccctgg agaaggggtc ggggtggtg 2100

gtaaagtagc acaactacta tttttttct ttttccatta ttattgtttt 2150

ttaagacaga atctcgtgct gctgcccagg ctggagtgca gtggcacgat 2200

ctgcaaactc cgcctcctgg gttcaagtga ttcttctgcc tcagcctccc 2250

gagtagctgg gattacaggc acgcaccacc acacctggct aattttttgta 2300

cttttagtag agatggggtt tcaccatgtt ggccaggctg gtcttgaact 2350

cctgacctca aatgagcctc ctgcttcagt ctcccaaatt gccgggatta 2400

caggcatgag ccactgtgtc tggccctatt tcctttaaaa agtgaaatta 2450

agagttgttc agtatgcaaa acttggaaag atggaggaga aaaagaaaag 2500

gaagaaaaaa atgtcaccca tagtctcacc agagactatc attatttcgt 2550

tttgttgtac ttccttccac tcttttcttc ttcacataat ttgccggtgt 2600

tcttttttaca gagcaattat cttgtatata caactttgta tcctgccttt 2650

tccaccttat cgttccatca ctttattcca gcacttctct gtgttttaca 2700

gacctttttta taaataaaat gttcatcagc tgcataaaaa aaaaaaaaa 2749
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<210> 517
<211> 332
<212> PRT
<213> Homo Sapien

<400> 517

```
Met Arg Leu Leu Val Leu Leu Trp Gly Cys Leu Leu Leu Pro Gly
 1               5                  10                  15

Tyr Glu Ala Leu Glu Gly Pro Glu Glu Ile Ser Gly Phe Glu Gly
                20                  25                  30

Asp Thr Val Ser Leu Gln Cys Thr Tyr Arg Glu Glu Leu Arg Asp
                35                  40                  45

His Arg Lys Tyr Trp Cys Arg Lys Gly Gly Ile Leu Phe Ser Arg
                50                  55                  60

Cys Ser Gly Thr Ile Tyr Ala Glu Glu Glu Gly Gln Glu Thr Met
                65                  70                  75
```

408

```
Lys Gly Arg Val Ser Ile Arg Asp Ser Arg Gln Glu Leu Ser Leu
                80                      85                      90

Ile Val Thr Leu Trp Asn Leu Thr Leu Gln Asp Ala Gly Glu Tyr
                95                     100                     105

Trp Cys Gly Val Glu Lys Arg Gly Pro Asp Glu Ser Leu Leu Ile
               110                     115                     120

Ser Leu Phe Val Phe Pro Gly Pro Cys Cys Pro Pro Ser Pro Ser
               125                     130                     135

Pro Thr Phe Gln Pro Leu Ala Thr Thr Arg Leu Gln Pro Lys Ala
               140                     145                     150

Lys Ala Gln Gln Thr Gln Pro Pro Gly Leu Thr Ser Pro Gly Leu
               155                     160                     165

Tyr Pro Ala Ala Thr Thr Ala Lys Gln Gly Lys Thr Gly Ala Glu
               170                     175                     180

Ala Pro Pro Leu Pro Gly Thr Ser Gln Tyr Gly His Glu Arg Thr
               185                     190                     195

Ser Gln Tyr Thr Gly Thr Ser Pro His Pro Ala Thr Ser Pro Pro
               200                     205                     210

Ala Gly Ser Ser Arg Pro Pro Met Gln Leu Asp Ser Thr Ser Ala
               215                     220                     225

Glu Asp Thr Ser Pro Ala Leu Ser Ser Gly Ser Ser Lys Pro Arg
               230                     235                     240

Val Ser Ile Pro Met Val Arg Ile Leu Ala Pro Val Leu Val Leu
               245                     250                     255

Leu Ser Leu Leu Ser Ala Ala Gly Leu Ile Ala Phe Cys Ser His
               260                     265                     270

Leu Leu Leu Trp Arg Lys Glu Ala Gln Gln Ala Thr Glu Thr Gln
               275                     280                     285

Arg Asn Glu Lys Phe Trp Leu Ser Arg Leu Thr Ala Glu Glu Lys
               290                     295                     300

Glu Ala Pro Ser Gln Ala Pro Glu Gly Asp Val Ile Ser Met Pro
               305                     310                     315

Pro Leu His Thr Ser Glu Glu Glu Leu Gly Phe Ser Lys Phe Val
               320                     325                     330

Ser Ala
```

\<210\> 518
\<211\> 24
\<212\> DNA
\<213\> Artificial Sequence

\<220\>
\<223\> Synthetic oligonucleotide probe

\<400\> 518

ccctgcagtg cacctacagg gaag 24

<210> 519
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 519
ctgtcttccc ctgcttggct gtgg 24

<210> 520
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 520
ggtgcaggaa gggtgggatc ctcttctctc gctgctctgg ccacatc 47

<210> 521
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 521
ccagtgcaca gcaggcaacg aagc 24

<210> 522
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 522
actaggctgt atgcctgggt gggc 24

<210> 523
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 523
gtatgtacaa agcatcggca tggttgcagg agcagtgaca ggc 43

<210> 524
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

410

<223> Synthetic oligonucleotide probe

<400> 524
aatctcagca ccagccactc agagca 26

<210> 525
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 525
gttaaagagg gtgcccttcc agcga 25

<210> 526
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 526
tatcccaatg cctcccccact gctc 24

<210> 527
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 527
gatgaacttg gcgaaggggc ggca 24

<210> 528
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 528
agggaggatt atccttgacc tttgaagacc 30

<210> 529
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 529
gaagcaagtg cccagctc 18

<210> 530
<211> 18
<212> DNA

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<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 530
 cgggtccctg ctctttgg 18

<210> 531
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 531
 caccgtagct gggagcgcac tcac 24

<210> 532
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 532
 agtgtaagtc aagctccc 18
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